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ABSTRACT Proceedings of a 1980 workshop in Queensland, Australia, on evaluation in distance teaching are presented. Two focal areas were the assessment of students and evaluation of programs and courses. In addition to keynote and workshop papers, a variety of evaluation forms are presented. Among the papers and authors are: "The Setting of Tertiary Education in Australia in the 1980's" (J. A. Allen); "Assessment of Students in Distance Teaching" (Brendan Connors); "Program Evaluation in Distance Teaching--Against the Technologisation of Reason" (Stephen O. Kemmis); "New Horizons in Distance Education" (Eric Gough); "Key Issues in Evaluation in Distance Teaching" (John D. Armstrong); "Practical Project Assessment Problems in Distance Teaching" (W. L. Cook); "Evaluation of Knowledge, Attitudes, and Skills in Distance Teaching: A Discussion Paper" (A. J. Doring, R. P. Moon); "The Assessment of Skills-Oriented Courses in In-Service Programs for Teachers" (Barry A. Fields, Caroline Cottman); "Evaluation and Change in the Deakin Course Team Context" (M. Kelly); "Criteria for Assessing Assignments" (D. A. F. Mitchell); "Evaluative Feedback on Student Assignments" (I. McD. Mitchell); "Using a Communicating Styles Survey to Evaluate the Interaction Patterns of External Students in Queensland" (Brian Noad, Ken Stafford); "The Preparation, Implementation, and Evaluation of Non-Print Media in a Mathematics Curriculum Studies Course" (I. J. Putt); and "Development, Teaching, and Assessment of a Multidisciplinary Course: A Case Study" (P. C. Sharma, W. H. Richmond). (SW)



Townsville College of Advanced Education

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Proceedings of a Workshop Held at Townsville College of Advanced Education in Co-operation with the Australian and South Pacific External Studies Association, 11 - 14 May, 1980.



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EDITED BY : J. D. ARMSTRONG AND R. E. STORE

Townsville College of Advanced Education
1980

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PREFACE

In May 1980 the Townsville College of Advanced Education hosted a national Workshop on the theme of "Evaluation in Distance Teaching". The theme, chosen in consultation with the Australian and South Pacific External Studies Association, seemed timely as calls for greater accountability become more frequent and more strident. Believing that we should at least begin the task of defining some of the problems associated with evaluation in distance teaching, we saw two focal topics for the workshop - the assessment of students and the evaluation of the programs and courses students undertake.

In his book, Assessing Students: How Shall We Know Them?, Rowntree (1977, p.1) says:

If we wish to discover the truth about an educational system, we must look into its assessment procedures. What student qualities and achievements are actively valued and rewarded by the system? How are its purposes and intentions realised? To what extent are the hopes and ideals, aims and objectives professed by the system ever truly perceived, valued and striven for by those who make their way within it? The answers to such questions are to be found in what the system requires students to do in order to survive and prosper. The spirit and style of student assessment defines the *de facto* curriculum.

Many papers presented at the workshop examined "the spirit and style of student assessment". Brendan Connors' paper provides a useful set of principles to guide course-designers (or course-writers) in devising appropriate student assessment. Various papers address the problems associated with teaching and assessing skills at a distance while others draw attention to the need to provide appropriate student feedback.

On the problems of program evaluation, Holmberg, in his book Distance Teaching (1977, p.86), says:

There is much literature on general procedures of evaluation, but little on the specific aspects of distance education There is much to be done to develop new approaches and practicable as well as reliable methods and instruments for evaluating distance teaching courses.

Several papers discuss this problem in some depth. The keynote paper by Dr. Stephen Kemmis examines program evaluation against the background of the technologisation of reason. Dr. Sharma evaluates a non-credit multi-disciplinary course offered by the Division of External Studies at the University of Queensland. Other papers look at the evaluation of particular elements of the programs we offer. Yet others focus on ways, means, and models for evaluating programs which take account of all of the elements - the content, the style of presentation, the lecturer, and support systems.

While easy solutions may not be offered in many of the papers, at least the problems are defined more sharply. And as we understand the problems more clearly, we shall be able to find better solutions.

This publication contains the majority of papers presented at the Workshop. Only those papers which were directly related to the theme have been included.

Many people have contributed to the final preparation of this book. Reia Houston typed transcripts from original audiotapes. Margaret Cottrell has patiently typed most of the final manuscripts. Val Hicks has also assisted with typing papers. Brian Pump has prepared the photographic material, and Gillian Matthew has designed the cover. We have appreciated their willing and cheerful assistance. Finally, the institutional financial support of the College should be acknowledged. Without the generous support of the College, there would have been no Workshop Proceedings. To all who contributed to and assisted in the preparation of this publication, our sincere thanks.

John Armstrong
Ron Store
August 1980

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KEYNOTE PAPERS

OPENING ADDRESS - THE SETTING OF TERTIARY EDUCATION IN AUSTRALIA
IN THE 1980'S

Dr. J.A. Allen
Chairman, Queensland
Board of Advanced Education.

I am honoured to accept the invitation to give the opening address at this Workshop on Evaluation in Distance Teaching. I warmly commend those who are responsible for sponsoring and organising this Workshop and can think of few things of more importance in distance teaching than evaluation. I personally look forward to receiving in due course not simply the papers of the Workshop but, hopefully, its conclusions, because it seems to me that a workshop should always produce something. So often these occasions degenerate into a "talk-fest" and little emerges from them. I am confident that there will be some concrete outputs from this particular exercise.

Largely at the suggestion of the Workshop organisers, I am proposing tonight to say something about my perceptions of the present and future political context of tertiary education in this country, and my expectations for the period that lies ahead, through to 1984 or thereabouts. Against that background, I want to speak briefly about developments related to external studies and then try to identify some of the issues that I see needing evaluation. In what I have to say I will be using the Queensland example as a framework, but I hope you will recognise that, in so doing, I am inviting you to draw the wider national and, if necessary, international implications and comparisons.

Let me start by saying a little about what I see is the present and perhaps the future political climate in this country. At the national level, the Australian economy is now an exceedingly complex system both intra-nationally and internationally. Internally, it is a highly interactive system, interactive between the public and the private sectors. Our recent years, after a long period of stability and steady but not terribly exciting growth, have been dominated by two major issues - unemployment and inflation, and all that these imply for the social, the industrial, and the political dimensions of our society.

I have to say that I find it difficult to see any significant improvement in the immediate future in the area of unemployment, particularly in youth unemployment. The problem is unquestionably a structural one. In the long term it is unlikely, in my judgment, to be responsive to the band-aid policies which are currently being pursued. I should like to bring to your attention a significant document in this area, a publication titled Understanding Unemployment, published in 1978 by the Australian Industrial Development Association, a body comprising the major industrial corporations of this country. This publication sets out in a most comprehensive and critical way the framework of policies that might be pursued if there were to be a serious attack on the problem of youth unemployment. I was, of course, delighted to see that it covered almost precisely the advice I tendered to the Queensland Government in 1977, when the problem first began to emerge. But regrettably, at this stage, no Government - State or Commonwealth - seems willing to address the policy requirements to which this quite desperately difficult problem gives rise. I also have to say that I find it difficult to perceive any significant decrease in the rate of inflation in the immediate future. Indeed, all the evidence suggests that, in the short term at least, inflation will increase because of domestic and overseas influences.

It follows that, in an exceedingly and increasingly complex system involving many variables, any kind of worthwhile policy response by governments will need to comprehend those variables and be based on a time scale which is commensurate with the nature of the problem, not commensurate solely with the very short electoral cycle in this country. In brief, we live in a climate of considerable uncertainty, one which I have to say is more uncertain than I have seen in much of my life-time.

At a State level, it will not have escaped those who read the Australian press that Queensland is currently passing through a period of great volatility and political instability. Indeed, I sometimes think that the noise-to-signal ratio at the State Government level has become so high that I am surprised that anyone can seriously distinguish the signal. One has a taste of this in the Sixth Interim Report of the Parliamentary Select Committee on Education in Queensland. By any standard of judgment, this was a "noisy" report based on premises which, in an elementary fashion, one can demonstrate to be factually wrong. Yet it is in this climate that the Board is seeking to maintain a reasonable degree of continuity and confidence and to maintain a workable situation with the State Government, who are our political masters.

At the State level, there are other changes pending which will themselves have a significant effect on the operation of colleges and universities. These derive largely from two major changes that are about to occur in the funding arrangements for State Governments in this country. The first concerns the system of reimbursement from the income tax pool. You might know that, under the Whitlam Government, the reimbursement formula had built into it a handsome growth arrangement. That ceases at the end of June of this year and all the evidence is that, in the future, the reimbursement arrangements between the Commonwealth Government and the States will no longer contain so generous a growth concept. Likewise the long-established Commonwealth-States cost-sharing agreement on hospitals is about to come to an end, and that open-ended commitment, entered into some years ago, certainly will not be further continued. These two changes will, in confluence, have a major effect on such matters as the employment of teachers, and hence on teacher education, and the further development and long-delayed upgrading of nursing education in this State.

It is against these very difficult climatic parameters that the Board is charged with the necessity to try to steer, in the best mariner's tradition, a steady course and to try to maintain some semblance of stability in the system. Of course, in any system of this kind, there are from time to time one or two low pressure centres. One of them I think inevitably will be submerged into an adjacent high pressure centre and would have happened long ago had there not been a politically created front to prevent that occurring. The other low pressure centre is much more serious. Intensive low pressure centres create rather strong winds, often of hot air, and these strong winds have a habit, in Queensland and Darwin at any rate, of wreaking a fair amount of havoc; that havoc, of course, has an impact on the system as a whole. That, then, is the general climate nationally, with some particular reference to the States in which the colleges and to a large measure also the universities are operating.

Now let me say a word or two about my expectations forward to 1984. I use 1984 not because George Orwell chose it or because I'll be sixty in that year, but rather because it happens to be the terminating year of the 1982-84 triennium. For the moment at least, there is yet no clear indication of Commonwealth Government policy in regard to the resources to be made available in that term. Indeed, we will not seriously have any significant information until February of next year, when Volume I of the Tertiary Education Commission Report is published and delivered to the Government, and in May of next year when the Government announces its guidelines. The legislation will follow in October of 1981, just in time for us to get off the ground in 1982-84.

At the present time, discussions are going on at the various levels and the Commonwealth authorities are in fact canvassing - I might say with not too much professionalism - various options. There is, however, a fairly major problem which is emerging, and that is the increasing significance and role of two bodies in the Commonwealth Government. One is called in the press "the Razor Gang" - I might say it could be better called the "Lynch Committee" after its chairman; the other is the Department

of Finance, which is charged by the Commonwealth Government with the greatest hatchet job this country has ever seen. But, like all good bureaucrats locked away in the purity of Canberra and far removed from the operational work-face, they have a great capacity for over-simplification.

I am delighted to tell you that I think we have made a bit of progress with one particular matter, namely the B.Ed. course, which they like to see as purely a post-graduate course. I was asked why it is that teachers require such an enormous amount of in-service education when engineers do not need anything like as much. Having pointed out that the upgrading courses in teacher education were repairing the ravages of the last thirty years and that the B.Ed. really is not quite that sort of continuing education course (it really is part of the first professional qualification of a teacher, at least à la Bassett) I suggested, in somewhat vigorous terms, that they had better look just at the PG1's and the PG2's. And if they did that sort of sum, they would realise that teachers are not all that different from engineers. And that, I hope, will have some significance in the future.

As for my perceptions of the immediate future, nationally I do not think that there is any serious prospect of any position other than a continuation of the general level of funding that applied in 1981, with the possibility of anything up to a couple of percent cut per annum in real terms. I think that in Queensland we might manage to do a trifle better than the national scene.

Funds for equipment will go up or down a little, but I believe that they will hold. The capital situation, particularly in regard to some systems and some institutions, will be particularly difficult. Early this year, in the absence of any very clear indication of what the policy is likely to be, I spent quite a lot of time devising a strategy which would do credit to both the Society of Jesus and Machiavelli in endeavouring to cover as many possible policy contingencies as might be invented. But I guess one thing is certain - the honeymoon is over. It has been over for quite some time, and it is usual then that children start to arrive, stresses are generated in the marriage, and financial demands seem to exceed income. I guess that the only philosophy which is worth holding in those circumstances is one of careful management and cautious optimism.

Let me now turn to future developments. In a general way, what I have said points to the need in the future for the highest possible level of quality of institutional management. There is no substitute for that kind of quality. Whether we like it or not, one of the major thrusts of the pursuit of that policy will be in the direction of the efficient use of available resources. For even if these are, in fact, static, what is not static is the generation of priority demands, which have an imperative that they be met. In tackling this problem, it is always well to consider what the constraints are - not only to consider and to list and to examine those constraints, but perhaps more importantly to distinguish between the real constraints and those which are imagined. It is all too easy to imagine that constraints represent larger barriers than in fact they do.

There are other quite major problems that one can see coming forward. New courses will clearly be very limited in number and, where they are approved for offering, they will need to involve a major redeployment of existing staff. At worst, the number of institutions engaged in particular fields of study may also have to be reviewed with the objective of decreasing the number so offering. It is my hope and it is the Board's hope that we will not become engaged in a staff retrenchment exercise. I happened to be one of those people in CSIRO years ago who had some responsibility for managing the closing down of the Tobacco Research Institute at Mareeba. There were only sixteen staff. I do not want to go through one of those exercises again. So I hope that staff retrenchments will not be necessary. But I

think this carries with it an implication that academic staff should approach the changing world with a degree of flexibility of attitude which some at least have not been prone to show in the past. But, while making the maximum effort to avoid problems of that kind, it would be a bad general who did not develop at least some contingency plans and have them in readiness.

Let me turn now to external studies and, as I said at the beginning, I will speak more particularly about the Queensland scene in the hope that what I have to say will have wider application. It is a matter of history that, when the University of Queensland was established early in this century, external studies was an important requirement and commitment of that institution and has remained so ever since. Indeed, the geography and demography of Queensland really have not changed all that much, so there is really no option if one is to meet the needs of higher education in the State of Queensland - and I think this applies equally to New South Wales and to some other States. Given a situation of a vast geographical region and a relatively sparse population, the needs of higher education can be met only by a multiplicity of modes of delivery. I use the term "modes of delivery" rather than thinking in terms of a simple binary classification - we are pretty much caught up with binary systems - because I think we need to take a wider view than a simple distinction between internal and external courses. This is necessary in order to comprehend a variety of off-campus and hybrid arrangements, contracting where this is appropriate from one institution to another, and so on. These requirements are central to meeting the higher education needs of a State such as Queensland.

You may know that there was a time not very long ago when the Commonwealth Government and the Commonwealth authorities strongly favoured the notion of a very limited number of institutions engaged in external studies (which I use as a generic term), on the model of the Open University in Great Britain. There was strong resistance to the concept of several institutions in the one State, even in a co-ordinated and rationalised way, engaged in offering the overall program of external studies. I think it is true to say that the Commonwealth Government and the Commonwealth authorities - particularly the Tertiary Education Commission's Chairman, who chaired the national Committee on Open University - have now changed their views a little. As expressed to me, it is that if we were starting again, we might do it differently, but we are a long way down the track and this is not the time or place to retreat and to try some other framework. And so I doubt whether we will have, in the immediate future or perhaps ever, a major thrust from the Tertiary Education Commission to restrict the offering of external studies in Australia to only a very small number of institutions.

From the Queensland point of view, that is a welcome change because the Board some years ago made a judgment, rightly or wrongly, that in view of the multiplicity of ways in which external studies might be offered, it would be more sensible to have several institutions involved but within a framework of a decentralised, rationalised system. With that, generally speaking, in mind, and bearing also in mind the work which the University of Queensland had traditionally done over a limited compass, we began on a fairly modest scale to develop the offering of external studies through a number of colleges with fairly clear separation of responsibility. For some years it was possible to pursue this line with what might be called a fairly light-handed touch. Indeed, the External Studies Committees which the Board had were essentially College committees which, generally, reached pretty useful practical consensus judgments on what the situation ought to be. More recently, some problems have arisen in that area in one or two fields of study, and it has been necessary for the Board to take hold of the situation in a rather more directive way than might otherwise have been the case. The difficulty, of course, is that if one college is grossly ambitious and mistakes marketing for education, then the Board has no option but to intervene.

We have, in fact, had a policy document in circulation in recent months. There are two aspects yet to be finally resolved. One is really a question of area limitation - regionalisation if you like - especially in teacher education. The other, which is, I think, more important and might come under the purview of this Workshop, is the question of eligibility: whether people should be free to choose the external mode of study no matter where they live, even if it is a hundred yards from a college which offers the particular course. I have to confess that I am a bit old-fashioned. I happen to think that external studies, off-campus teaching, or whatever are very important developments to bring a service to those who are unable to attend in person, but I find it very difficult personally to wrap my mind around the concept - technology notwithstanding - that teaching by the external mode can offer quite the same group interaction, group therapy, and the like which flow from well-conducted class-type situations. I don't know; perhaps other people's experience is different from mine. I guess you can conduct a love affair by letter and telephone and I suppose it is fairly exciting for the parties involved, but I doubt whether it leads to a fully satisfactory outcome. So I want to raise with you one particular issue which I would hope the Workshop would address, and that is this question of eligibility, of whether external studies in the generic sense is to be seen as almost a preferred mode and not as something which one moves to as a second option.

The second problem area I would like to identify is the diversity of arrangements which might properly form the basis of offering courses off-campus. North Queensland is an example of this. I think the way in which Townsville College has sought to think through individual situations in different places and come to judgments by a mixture of inputs and a mixture of technology, a mixture of devices and procedures, is worth contemplating because it reflects the fact that there is no simple, single, "one best" answer. This always presents a problem because when you write this down in financial or administrative terms, you get the most awful arrangement between fixed and variable costs; one would dearly like to be able to get a really good fix on what are the genuine costs of offering courses externally in different modes, taking into account some of the diversity of circumstances which occur. It is a pretty poor fall-back position to start talking about E.F.T.S. or weighted-student-units in that kind of situation. That is a second area which I would hope that, in terms of evaluation, this Workshop might give some thought to.

This leads me to the point I began with, when I described the overall framework, when I talked about the quality of financial management and I was bold enough to mention the word "efficiency", carrying a connotation of looking at the quality and quantity of output relative to the input. This is a problem which occurs in all areas of education. It is always much easier to measure inputs than outputs. Indeed, if you look at higher education statistics, you will find that they are nearly always input statistics, with just an odd table or two about the number about to graduate or who graduated last year. The problem may be more marked with external studies; certainly there would seem to be implications for evaluating the quality of external programs, for building in some form of contact with students, for following up drop-outs, and for more careful selection of students.

As one who spent some seventeen years in association with a large chemical corporation, one of those dreaded multi-nationals in this country, I learned a great deal about the question of outputs relative to inputs, and I would hope that the Workshop might look very critically at this problem of outputs from the process of education in the external mode. Over a long period of time I have come to the conclusion that students drop out of - or fail, or leave, or discontinue, or whatever term you wish to use - courses at the tertiary level for a vast multiplicity of reasons, only some of which are related to the institution offering the course and the quality of the course. Many of these reasons seem to be related to a range of issues of employment,

domestic circumstances, extra-mural problems and demands, general motivation, and so on. There is a need for a worthwhile methodology to try to handle this problem so that we can get some kind of feel for what those circumstances are, and how we can combat those which are in our power to combat. That is not to say that all are amenable to that sort of exercise or that sort of remedial action, but I believe we should not run away from the problem of identifying those issues and those problems for which appropriate, and I emphasise appropriate, remedial action can be taken. Because, in the end-result, efficiency implies a certain level of output at an acceptable cost, and that I think, in the present and future climate, becomes a very important issue indeed. What one has to do, really, is to find out where one is on the curve and to ascertain whether the expenditure of x or y additional dollars would in fact produce any significant or substantial gain. And that is a general issue in the whole management of educational processes, which has an extra dimension when it comes to dealing with external studies.

The second issue in external studies (after wastage rates) concerns academic staff. There are very long traditions in respect of the appointment of academic staff; with relatively few exceptions, such staff have normally been appointed on the assumption that their role will be to teach internal courses. What are the talents required of people to teach effectively in an external mode? What are the characteristics of the support staff they require? And if, in a changing world, with flat funding, we are to maximise the use of human resources, then these questions must be addressed.

A third issue that needs careful consideration is the amount and kind of technology required. I think that it is extremely important not to put too much technology between people, especially academics, and their work. We have recently had two very good examples of the use of technology: in London, the S.A.S. achieved outstanding success by using people and limited technology; in Iran, the Americans used too much technology and failed. Indeed, technology seems to have a habit of failing. So I think we need to be very cautious, sophisticated, and critical in the judgments we make about technology because we have available to us today an immense number of options and these will be greatly multiplied with the decision by the Commonwealth Government to provide a communications satellite.

The key questions, then, are: How do you evaluate the impact of particular technological devices? How do you revise them as required? Does the technology you use dominate or limit the intellectual effort? Are the effects long term or short term? What is the importance of group interaction?

Let me take up that last question for a moment. What really is the importance of group interaction? I guess all of us have our own experiences of group interaction; and I hope you will forgive me if I tell you a story of the most memorable teaching experience of my life. When I came back after the war to resume my university course, I finished my degree in 1946, and into the university in 1947 came a large load of ex-servicemen who had done a one-year War Service matriculation. As part of the commitment under the Commonwealth Reconstruction Training Scheme, these people were entitled to an extra tutorial a week. As a research student, I had a group of six of these, and I was paid five shillings an hour, per head. I might remind you that, in 1947, 30 bob an hour to a research student seemed like a pretty good deal. I might say that, of those six, three are now leading medical specialists. The same three were prisoners-of-war on the Burma-Siam Railway and they had learnt, I think, from that experience what life was really about. That was a lime, for those of you who know some chemistry, of what I might call the "pictorial chemistry" of Bohr-Rutherford atoms, with electrons and neutrons and protons and pairing electrons and so forth. One did a lot of blackboard work on this kind of thing. So after the hour's tutorial, they would say to me, "We will now repair to the Bellevue Hotel

[which was the nearest hostelry] to drink your tutorial fee." And there, in the Bellevue Hotel (which regrettably is no more, but it had a rather remarkable bar in the traditional style - done in oak with green rubberised material inset in the top of the bar), with the barmaid keeping the top of the bar clean, the tutorial proceeded. My teaching continued with a finger dipped in beer, drawing diagrams on the bar. At the end of the night, the side-wagers would be laid on how long it took me to write out the Periodic Table, which I used to be able to do in those days at great speed. All I can say is that the quality of the teaching was not impaired by being in the bar of the Bellevue Hotel, and I have never had an experience since with such immense and close participation of a group of half a dozen people starting a fair way behind scratch, who had a degree of determination which I have not yet seen reproduced anywhere else. But I am not suggesting that students should work on the Burma-Siam Railway to achieve that degree of determination. I simply offer these comments to make the point that, as we move increasingly to technological devices and technological techniques, we should remember that they need careful evaluation and that no two students are the same.

I have tonight touched on many issues, some of which are very broad and some of which are specific to external studies. I make no apology for expressing views which are my own, which are born of my own chequered and somewhat catholic experience. It seems to me that, even within that compass, there are any number of significant problems which you as Workshop participants could consider, analyse, and debate, and on which hopefully you could reach some workable conclusions - and I emphasise workable conclusions. You need always to ask the question when you leave this place, "Well, what do we do next Monday?" Because some of those conclusions ought to have the capacity to make an impact on what you do next Monday.

I hardly need to add that in any educational process - whether in a classroom, in a laboratory, by television, over telephones, or in a local school of arts in an off-campus situation - you are dealing with people who are by nature diverse in their personalities, their backgrounds, their objectives, their talents, and their circumstances. Though I have referred to some of the more direct management, measurement, and administrative concerns, let us remember that education is concerned with people, with all their intrinsic variability.

Ladies and gentlemen, I have the greatest personal pleasure in officially opening this Workshop and I express the hope that it will be a happy and fruitful experience for all those who participate and that it will lead to some specific and usable outcomes.

KEYNOTE ADDRESS - ASSESSMENT OF STUDENTS IN DISTANCE TEACHING

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Open University Centre for International
Co-operation and Services.

I should like to begin by saying a few words about my particular approach to this subject of student evaluation, or assessment as we usually call it. My main interest in life is good teaching. I see assessment as an integral part of teaching; I do not see it as some kind of separate measurement process. I see the processes of teaching and testing as being essentially so interwoven that the two can hardly be separated in the ideal system.

For the last four years, Derek Rowntree and I and some others have been developing a set of materials which amount to a self-instructional course on how to write self-instructional courses. One of the very difficult problems you confront when you try to do this sort of thing and later on when you try to pilot these materials with live students is that you suddenly realise that the days of discussing assessment, of writing reports on assessment, and of doing research into assessment are over; there are people wanting to know "How do we do it?" and that is a very difficult question.

I apologise in advance if my approach is very much related to teaching as well as student assessment, and if it is practical rather than highly theoretical, and if it is descriptive and suggestive and qualitative rather than quantitative. When challenged, I can usually produce some kind of theoretical basis for everything I say, but I think it is rather tiring to go on quoting authorities all the time, and my memory is not what it was.

For the last couple of years, then, having taken two years to write this set of materials, I have been seconded to the Consultancy Centre (the "late" Consultancy Centre - a victim of the budget cuts) at the Open University, and I have been taking these materials around the world and trying them out on various people in places like Sri Lanka, Venezuela, Genoa, Australia, Poland, Costa Rica, and Indonesia (and one or two other places as well), as well as trying them out with groups of people in the United Kingdom. Therefore much of what I am going to say is partly my own ideas, but it has been partly tested against this kind of developmental process which has been going on around the world.

As I said, my approach is teaching. You must remember that everything I say comes from an Open University background. I know that the Open University model is not a universal one; I know that Australian problems must have Australian solutions and so on. So please digest and process everything I say in the light of the fact that I am talking about Open University experiences and how they can perhaps be generalised to other situations.

So, as far as the Open University is concerned, I think the teaching is in the materials. If you do small sums about the hours that the student spends on his materials, as opposed to the hours that he spends on watching television, listening to radio, going to the study centre (which is not compulsory in most cases anyway), you find that many students spend something like 370 hours out of about 400 on the materials. So from that I deduce, at least quantitatively, that the materials are the most important face of the University, the face that the University is always presenting to the students. Admittedly, it has other faces - it has the study centre, it has the television screen, it has radio, it has summer schools - but the usual face is that of the materials.

So good teaching to me means good materials. This being so, one has to ask oneself what is meant by good materials. And anyway, what is so special about the distance student that he needs these high-quality materials? Why can't he get on with all the stuff that already exists? I personally think that there is something very special about distance students. I read an article recently written by an Australian Vice-Chancellor, in fact, suggesting that external students are not very different from the students on campus. Well, certainly they are human beings like the students on campus and they have lots of other similarities, but it seems to me that there are two points you can pick on straight away which make them very different.

The first difference is the personal support system of the external or, as we call him, the distance student, which is very impoverished and tenuous. If we compare him with the internal student, the student on campus has people on all sides who tend to support him, to reassure him, indeed to teach him and tell him things. He has his fellow students on the same course. Better still, sometimes, he has students around who did the same course last year, who know the whole thing now. He has students who are on other courses; he has his own teachers; he has access to university servants who are not academics, who can tell him many things about how the institution operates.

Let us look at some of the other supports the on-campus student has as compared with the distance student. Let us suppose that an internal student goes into a lecture and does not understand a word of what is being said. What does he do? He comes outside and he says to his fellow students, "I didn't understand a word of that," and they say, "Well, we didn't either." So then he knows straightaway that he is not the most stupid student in the world. But the external student has no idea of this; if he does not understand something, he cannot easily go around and ask other students about it. On the other hand, your internal student may come out of the lecture and say, "Well, I didn't understand a word of that. What did he mean by so-and-so and so-and-so?" With a bit of luck, one of his fellow students will say, "Well, it wasn't very plain, but I thought what he meant was so-and-so and so-and-so." You get student teaching student, and that is a far more effective process usually than teacher teaching student. If nobody understood what the teacher said, with a bit of courage, the students may even get word back to the teacher that they did not understand and maybe influence teaching that way. There is really very little prospect in a distance education system of any one student who does not understand something affecting the material while he is doing the course. With a bit of luck and a good responsive system, he may get changes done for next time.

I think we can assert that, in terms of support systems, the external student is very much worse off than the on-campus student.

Another thing that stands out a mile to us in the Open University and to people like us in correspondence colleges in the United Kingdom is that external students drop out far more than on-campus students. If you are going to say that the external student is just the same as the on-campus student, you then have to tell me why it is that on British campuses 5 percent would be considered to be an enormous drop-out rate among students, whereas even at the Open University (I am proud to be able to say even at the Open University), it may be something like 30 percent, depending on how you calculate it.

It is not always easy to arrive at the exact figures because even to define a "drop-out" is very difficult. You do not know when dropping out really happens. All that happens is that the students take longer and longer and get later and later with their assignments; even the students themselves do not know exactly when they drop out. They do not know until later that they are drop-outs.

So doing any research on drop-out rates is quite difficult. One thing I have discovered is that dropping out may not in the first place be due to cognitive reasons. Dropping out is very often due to quite complicated reasons, but not principally intellectual ones. Let me try to confirm this assertion by comparing Arts and Education drop-out rates at the Open University.

As you perhaps know, we do not demand any entrance qualifications from Open University students. They have to be able to read and write, and we hope they can do the four rules of arithmetic, with whole numbers at any rate, but we do not demand any formal educational qualifications at all. Now, with students like that, clearly a number of our courses are very difficult, almost barred for them because they do not have the quantitative or technical skills; so they tend not to try technology courses or science courses or mathematics courses. They tend to gravitate to Arts/Humanities courses, and sometimes to Social Science courses. So the Arts Faculty courses contain quite a high proportion of very good students who, in pursuing an Arts course, are really extending their interest in life, in reading, in books and music and things like that. Nevertheless, they do contain a proportion of people who have enrolled with no qualifications at all and who are taking broad liberal arts courses.

On the other hand, students in Educational Studies courses have quite a different background. A high percentage of them are teachers who have had perhaps two or three years of higher education. They are immersed in the educational situation. They must have developed some study skills while they were studying. They are highly motivated because as soon as they get a degree they move up on to another salary scale.

So the Education students are quite different, in many ways, from the Arts students, many of whom are not used to studying, are not immersed in the educational situation, have no previous experience of higher education, and do not have the same immediate financial motivation. But if we look at the drop-out rates for the second-level courses in these two Faculties, we come up with these figures:

<u>Faculty</u>	<u>Total Enrolment</u>	<u>Drop- outs</u>	<u>Pass</u>	<u>Fail</u>
Arts	34226	6526 (19.1%)	25571 (74.7%)	2129 (6.2%)
Educational Studies	53286	11251 (21.1%)	39641 (74.4%)	2394 (4.5%)

We can see that for the students who are largely used to higher education and used to education, have study skills, and are highly motivated, the drop-out rate is actually higher than for the other kind of students. On the other hand, we cannot say that the one kind of course is easier than the other kind of course because the pass rate for Educational Studies courses is 74.4 percent while the pass rate for Arts courses is 74.7 percent.

I would find those figures rather strange if I thought that dropping out was due to cognitive difficulties. The evidence seems to be that Educational Studies second-level courses are no more difficult than Arts second-level courses, that pass rates are about the same, but for some reason there is a higher drop-out rate for Educational Studies students than for Arts students. It is not a very significant difference, I agree; in fact, it is almost the same. But it indicates to me that it is not cognitive difficulties that are causing the real trouble. The research that we have done on drop-outs shows that dropping out is more likely to arise from affective or emotional causes or some kind of domestic situation.

One of the things that I have discovered is that usually people are very coy about revealing their drop-out rates. In Britain, we have tried to find out what drop-out rates are like in correspondence schools. They won't tell you. Even the largest correspondence school in Britain, apart from the Open University, ducks the question when asked directly. They say things like, "Well, of course, we just provide the courses, we don't set the examinations. These people are studying for other people's examinations, and they don't tell us what happens" and so on. I know perfectly well that they do follow up their students and they do know this, but they do not want to reveal it. However, when the Army was considering introducing a subsidised scheme for servicemen who wanted to take correspondence courses, we wanted to build up a set of approved correspondence courses. To do this, we had to find out which were the most successful ones. By various subterfuges, we actually managed to get some kind of line at least on what the order of the figure was, not the exact figure. And the order of the figure on drop-out rates in British correspondence colleges at that time was 99 percent. That is, something like one percent of the students followed the course right through, got to the examination, and actually took it. We don't say passed it; a lot of them failed. But they at least got that far.

Now I know a lot of people in correspondence colleges and occasionally I get them on one side and ask them about this, and they smile, and they know that I know, and I know that they know I know. But when I say, "Well, isn't this drop-out rate bad?" they say, "Well, it's not our fault if these students come to us. The reason why we can offer our courses so cheaply to the students who do follow through is because we make so much money on the students who do not persist; who pay their fees and don't really make many demands on us as a result." And so it is all a highly benevolent system of making the failures in life pay for the successes.

I do not know what your drop-out rate is in external studies in Australia and I promise not to ask, but I would expect it to be worrying some people. It worries me. It worries me because figures like this show me that a lot of people who drop out could persist if only somehow or other we could keep them on the track. They could persist, they could get to the end, and a great many of them would pass.

Drop-outs represent waste. In addressing this problem, I started from one end by asking the questions, "What is good teaching?" "How do you do good materials?" "What is the test of the success of good materials?" I started from that end, and I think Dr. Allen started from the other end by asking, "What is cost effective and how is State money going to be well used?" We meet somewhere in the middle tearing our hair about this terrible waste that happens when people join courses and then for some reason or other do not carry on with them. And this really worries me. I know that distance learning bristles with problems and I know that most of these are situational, personality, emotional, affective-type problems. I would like to know how to do something about it.

I think that doing something about it means producing the very best materials we can, somehow or other coaxing people to carry on with the course, even if this means making the materials look rather like an illustrated magazine rather than a deadly serious German textbook. But if a lot of drop-outs result from affective or emotional problems, the result of some kind of stress, it seems to me that the main cause of stress in a distance course usually centres around assessment and a very closely associated problem - student overload.

Even in our University, which tries to be quite tough about the number of hours the student can be expected to work, too many courses are still overloaded. I would guess that most students are worried by overload although they do not know it is overload. They think they are lazy. They think that the course material is too

difficult for them because they cannot finish it in the ten hours a week that we promise them they ought to be able to finish it in. Once again, they have no points of reference; they cannot go and consult lots of fellow students and people who did the course last year who will say, "Oh yes, that's terribly overloaded, that bit. But don't worry, you don't need to do it all; it gets better later on." They do not have these points of reference. So assessment is one area that ought to be looked at far more carefully because it has a significant effect on this drop-out rate, which is the biggest source of waste in the system.

What sort of assessment do we want, then? Let me start by describing the sort of assessment we do not want. In fact, since assessment and materials are part of the same thing to me, let me describe the sort of materials and assessment we don't want. The sort of materials we don't want are the materials that have been produced by a course team, each of whom is trying to show how clever he is, without even thinking about assessment until much later when somebody comes along and says, "Do you realise you have to have your questions for assessment in to the office tomorrow?" And then it's "My God, never thought about assessment; quickly, let's think of an essay." Course teams which start on that basis are doomed to disaster because, instead of working as a team as we hope they do for the benefit of the students, they are working the other way. They are all working against one another to try to show how clever they are, how important their subject is, and so on. I have seen course teams like this. I daresay many people in this room have seen materials that have been written on that basis. Well, those are the materials we don't want.

The sort of assessment we don't want is the assessment that has been tacked on right at the end, because all sorts of nameless horrors happen when you do that sort of thing. This applies just as much to final assessment as to continuous assessment or indeed to informal self-assessment. So, in teaching, the materials and the assessment should come together.

What kind of principles should good assessment be based on, then? I have talked about this to lots of people in lots of places around the world and we have gradually built up a list of principles. The first and most important one I have already mentioned - *integration*. The assessment must be integrated with the teaching process. It is an essential component, it should match the materials in every way. In fact, it should sometimes be the material. If students do an assessment exercise without learning something from it, they have wasted a lot of study time. I know that the experts on measurement and the "objective testers" and people like that would say that you should exclude ideas like that from your mind when you are measuring and testing; that the thing to do is to maintain test purity and all the rest of it - validity and reliability. If you were just doing an impersonal set of measurements, I think that would be true. If you had unlimited time at your disposal, I think that would be true. But when the student only has ten hours, if you are going to take half an hour, or one hour, or maybe two or three hours out of that for him to do some kind of assignment for you which is going to be marked, if it is an assignment from which he is not going to learn very much, then it is a very poor assignment. You are wasting his study time.

So a good test teaches. And good teaching involves testing. I can remember a time when books on teaching were full of the idea of testing: teaching and testing spelling; good testing of essays; and they were books with those kinds of titles. Testing became less respectable later on, but I think I detect it creeping in again, and when people start talking about accountability, it seems to me that we have to accommodate ourselves to the idea of testing and really integrating it into our teaching. *So the first principle of assessment is that teaching and testing must be integrated.*

The second principle is that good assessment must be explicit. It must tell the student exactly what it wants. It must also be reassuring and fair, so that the student sees that it is fair. It must be reassuring in that it tells him how difficult it is, how long it should be. In teaching in face-to-face situations in British universities and colleges, we do not always tell our students exactly how much work we want from them, prompted by a secret hope that someone will bring us something really good and really big. We do not always put an outside limit on the length of essays and assignments. What happens in that situation? Students get together and they arrive at some kind of consensus norm. They go around and say, "How many pages have you done?" "Well, I've only done seven pages, but old Fred over there has done fifteen." And the figures get bandied around and everybody comes to the idea that if you do about eight pages, you won't stand out; you will be about the same as the others, and if Fred wants to do fifteen, let him.

These are processes that are not available to distance students. So, when I say you must be explicit, I am thinking of all sorts of things like that - the length, the standard, exactly what it is you want.

I can recall one essay in the Social Science Faculty in our University which said, "Is social stratification inevitable? Discuss." And a very good, very well-written essay came in from a student who did not mention Marx or Weber or Bernstein or any of the other people in that particular constellation; he just discussed the human way in which we tend to evaluate one another and to value scarce qualities, and he did it very well. When he was failed for this essay, he appealed. So it came back to the Faculty, and I pointed out that if you set an essay which says "Is social stratification inevitable? Discuss", if it is inevitable it would go on whether Marx had lived or Weber had lived or Bernstein had lived, and this student had taken that point, which he was perfectly entitled to do if he wanted to. So that was one of the few occasions where the mark was actually upset, and he was given quite a reasonable mark for it in the end because it was a good essay. And afterwards I said to the sociologist, "If you want people to bring in Marx and Weber and people like that, you must set the essay in a different way. Be explicit and say, 'What have you read in Marx, or Weber, etc. to make you believe that social stratification may be an inevitable phenomenon in human affairs?'"

So explicitness is an important principle in assessment; you should be quite clear what you are telling the students to do, and they should be quite clear what a good answer should look like. They should also be quite clear about how difficult it is, because we are going on to another principle in a moment in which difficulty is quite important. But it can be very, very frustrating for a distance student to be given a piece of assessment and he is not quite sure what is wanted; it doesn't really mean very much to him and he doesn't have a lot of people to go and discuss it with.

I think it is very good for teachers sometimes to be put into the situation of answering a test about which they do not understand the first thing. I have actually brought a test like that along with me, and I will allow you time to do it now. You do not have to know anything about the content, because the content does not exist. This in fact is an objective test on a course on how to write objective tests. So it is a totally content-free test. The record for this is just under two minutes by a brilliant young chemist in Colombo, Sri Lanka. Please try to do it yourself. I nearly said, "Don't cheat," although to be accused of cheating if you ask somebody else when you don't know something seems to be silly to me; it is not cheating, it is only the sensible thing to do. It is what we should train our students to do. When you have it right, 100 percent right, you will be in absolutely no doubt that you have it right; you will not have to ask me. Just imagine doing this if your first language is not English. You may start now; you have fifteen minutes, with no time for perusal.

LOOK FOR THE CLUES - A CONTENT-FREE TEST

Select one response for each item -
only one is correct

Time Allowed: Not more than 15 minutes

1. The usual function of grunge-prowlers is to remove -
 - A. Grunges
 - B. Snarts
 - C. Trigs
 - D. Grods.
2. Antigrottification occurs -
 - A. On spring mornings
 - B. On summer evenings, provided there is no rain before dusk
 - C. On autumn afternoons
 - D. On winter nights.
3. Lurkies suffer from tranjitis because -
 - A. Their prads are always undeveloped
 - B. All their brizes are horizontal
 - C. Their curnpieces are usually imperfect
 - D. None of their dringoes can ever adapt.
4. Non-responsive frattling is usually found in an -
 - A. Gringle
 - B. Janket
 - C. Kloppie
 - D. Uckerpod.
5. Which are exceptions to the law of lompicality -
 - A. The miltrip and the nattercup
 - B. The bifid pantrip
 - C. The common queeter
 - D. The flanged ozzer.
6. Which must be present for parbling to take place -
 - A. Phlot and runge
 - B. Runge
 - C. Stuke and runge
 - D. Runge and trake.
7. One common disorder of an overspragged uckerpod is -
 - A. Copious vezzling
 - B. Intermittent weggerment
 - C. Non-responsive frattling
 - D. Uneven terkation.
8. Which one of these is right, A, B, C, or D?

NOTE: The answers to this test appear on page 22.

Let us go on. We said that assessment should be explicit, reassuring, and fair because there are no fellow students to pick up things from. *The next principle is variety.* Variety is an important principle in all written materials, but it is just as important in that part of the materials which deals with assessment. *There should be variety in format;* that is, the student should not always be answering the same kind of question. Some of our less imaginative courses at the Open University ask for an essay in April, an essay in May, and an essay in June, and another essay of about the same length in September, and so on. That would be fine if it were a course on essay writing. But there are other ways of testing things.

As well as variety of format, there should be variety of length. The student ought to be used, as part of his skills, to doing jobs of different lengths. Sometimes the answer is one word, sometimes it is a sentence, sometimes it is a list, sometimes it is an essay. There is nothing sacred about the essay which makes it the apotheosis, the summit of educational testing. It is just that it happens to be easy to mark, I think. And it is probably more interesting to the marker to read continuous prose, which may occasionally be entertaining and interesting, than to check off lists and so on. *There should be variety in the length of assignments.*

There should also be different levels of difficulty. It seems to me that, in a lot of the distance education materials I have seen around the world, this principle of variety of difficulty in questions is very rarely observed. Let me put it another way: if the only really difficult question the student has ever been asked appears in the final examination, he will not have had much practice in dealing with difficult questions. Unless you get students used to the idea that the answer to some questions can be a list or an annotated diagram or a table or a matrix, as well as a sentence or a paragraph or an essay, then it is not necessarily going to occur to them. Similarly, you have to get them used to different levels of difficulty.

I had a very good question put to me recently. Somebody at one of the workshops I attended asked, "Just how difficult should self-assessment questions be?" Now, when I talk about assessment, I am talking about every kind of assessment - final assessment, continuous, so-called continuous or intermittent assessment, and the important self-assessment questions or in-text exercises which should occur in the text of learning materials for distance students. Well, how difficult should self-assessment questions be? So I said, "I'm not sure I can think of a way to measure difficulty." And then I thought, "Of course, we do have a way to measure the difficulty of objective items in the percentage of students who get them right." I was always taught that a difficult question would be got right by 25 percent of the student population and an easy one would be got wrong by about 25 percent of the student population.

So, according to the usual practice of objective testing, we could say that a difficult question ought to be answered correctly by just 25 percent of the student population, leaving the other 75 percent as being unable to do it. But that would be very dangerous in distance education. You would want more than that to be able to do it. I would think that if you are really teaching to the average student, then any time you ask a question of average difficulty, at least 75 percent of the students should be able to do it. Even then I would regard only 75 percent being able to do it as making it a rather difficult question. I would suggest that a very difficult question could perhaps be done by only 25 percent of the students. A fairly difficult one would be done by, say, 50 percent. And an easy one ought to be able to be done by something like 95 percent. I am suggesting these criteria for levels of difficulty because it occurs to me that, except for objective testing, I have not seen any work done on this, and if we say that there ought to be a variety of levels of difficulty in assessment, then we have to have some way of deciding what we mean by difficulty. The only way I can see of doing that is by deciding how many students will be able to answer the question.

The next and related principle is continuity. To illustrate this, a student may find a set of self-assessment questions in his materials which he can do very well; he will find that he has to send in an occasional assignment to his tutor; after a bit of argument and a bit of come-and-go on both sides, he may get through. Then when he arrives at the final examination, he finds that he has failed. I think there is something strange about a system where this happens. It happens at our University. When you look at the results of continuous assessment, you find that they are consistently better than the examination results. One of the problems is what to do at the end of the year, how to sort out the people who pass very well on continuous assessment but then fail the examination. You have to start raising up certain bands of people to be merciful to them. But surely there is something wrong in any system where the students do pretty well until they get to the final examination. My principle of continuity would not allow that. This relates to what I was saying about difficulty: if students do not really know what a difficult question looks like and the way in which they are expected to tackle it, then it is going to come as a very nasty shock when they get to the final examination.

So I would like to see a variety of questions, and since you have to be explicit, you will tell students, "Now, the next self-assessment question is very difficult. Have a go at it for five minutes and see how well you do. And then, if you can't do it, you will learn a lot, we hope, from the discussion which follows it." All right, you have warned them. It is difficult. They won't go off and shoot themselves or withdraw from the course just because they can't do it. You have been explicit, you have warned them.

I am sure that students ought to learn quite early on (a) what a difficult question is like and (b) how a satisfactory answer will deal with it. Continuity is very important. Obviously it is a principle which far transcends assessment. It is the basis of good teaching. Teaching deals with things which become more and more complicated, more and more difficult, more and more wide-ranging until you reach the end of the course. If the assessment is not like that too, then there is something wrong. It is not integrated, it is not continuous, it does not exhibit variety.

The final topic I wish to discuss is the matter of *control*. Assessment is a magnificent control mechanism for students. They may not do anything else you tell them to, but since assessment is compulsory and they know they have to do this to get through the course, I think you can use it more than is normally used as an exercise in naked power. In other words, if you want to be absolutely sure the students are going to do something, you make sure that they know that they are going to be tested on it.

Let me tell one last anecdote. At the Open University, many of the social scientists said that objective test questions were too easy for a university course. So I said to them, "All right, I will prepare a set of questions on your subject and we'll see if you can do them." I produced some objective items of fiendish difficulty which they themselves could only half tackle, and they said, "Super, we're going to use these." Unfortunately, I was so flushed with success that I did not see the danger looming, so I said, "Yes, why not?" Of course, the students very nearly went mad over some of these items. They wrote in complaining bitterly. And one thing that they did which they would not normally do was that they actually started to get together. Until then we had not really thought about self-help groups (which are now one of the successes of the regional service at the Open University). But what happened was that students got on to one another on the phone and said, "What the hell's going on?" They talked to one another, discussed the problem, and then they agreed to meet. Every time a computer-marked assignment came along, they agreed to get together, and they would work out a joint solution to this and put it in. This is what I mean about testing and teaching being interactive, you see. That became

rather poor testing then, didn't it? But it became superb teaching. If you actually force students to get together and discuss their subject and pool their expertise, that is very fine teaching. So by accident, we discovered a certain way of controlling at a distance the behaviour of students, which is not a very easy thing to do.

I still have a feeling that some of our people think of assessment as being a not very respectable kind of activity; it rather spoils the beauty of the intellectual offerings which they give to the students. I do not believe that at all. I do not believe it spoils teaching to introduce testing. I think it improves it very much, and if the teaching and the testing go hand in hand, I think that the students will benefit from it. And the students themselves are in no doubt about the importance and the seriousness of assessment.

We spend hours in our course teams debating the ideal order for the presentation of subject-matter. We decide that we will have them read that, then go to their textbooks and read that, and then read the little bit in the television notes and watch the television program, and then they can do this exercise, and then they can go on and do this. And we put this all in the study guide so that they do all this in this order, and they finish up with their tutor-marked assignment. It's wonderful, they can do it! What actually happens is that the envelope comes through the letter-box from the Open University, the student empties it on to his table, and he thumbs through it until he gets to the tutor-marked assignment. Then he looks at that and he thinks, "That's what I'm going to be asked to do at the end, is it? All right, I'm going to read the rest of my materials with that in mind; anything that helps me with that I'll do, anything that doesn't I'm going to skip."

As teachers, we have delusions about the order in which students do things. But students are in no doubt about the realities of life. If you want them to do something, test it.

There are two laws about this: that which is not tested will be perceived as less than important, and that which is not tested will not be done.

ANSWERS TO CONTENT-FREE TEST ON PAGE 18

1. A. A cork-screw removes corks; a bottle-opener opens bottles. Therefore a grunge-prowker removes grunges.
2. B. Any self-respecting academic will make sure he covers himself by qualifying any statement he makes. B is the only response with a proviso attached.
3. C. As for B above, one must cover oneself by avoiding sweeping generalisations; therefore "usually" is much more likely than "always", "all", and "none ... ever".
4. D. The stem gives the clue. The correct response must start with a vowel because it is preceded by "an".
5. A. Again the stem gives the clue. The correct response must be plural to go with "are".
6. B. "Runge" is the only common element in the four responses; it seems a safe bet as the correct answer.
7. C. "Uckerpod" has occurred previously in the test, and so has "non-responsive frattling". Therefore it seems safe to assume that "non-responsive frattling" would not be completely out of context in relation to "uckerpod".
8. D. Any self-respecting test-writer makes sure that correct responses are well distributed: there have been two A's, two B's, two C's, but only one D so far. Moreover, D completes the neat pattern of answers to the first seven questions: A, B, C, D, A, B, C ... Alternatively, D is on the right.

KEYNOTE ADDRESS: PROGRAM EVALUATION IN DISTANCE TEACHING -
AGAINST THE TECHNOLOGISATION OF REASON

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In these remarks, I should like to address a very general problem of our culture as it bears on the specific question of program evaluation in distance teaching. The general problem concerns the technologisation of our thought - our willingness to subjugate our human, convivial intelligence and capacity for critical thought to technologies of reason. In a world dominated by contending specialisms, arcane technologies, and the proliferation of mass solutions to practical problems, we seem all too ready to give up our own critical intelligence and to accept as the solutions to our own problems the forms of life fashioned for us by others - where these "others" are "experts", "specialists", or, as I should prefer to call them for our purposes here, "the technologists of reason".

Let me set the stage by quoting the introduction to Stanley Aronowitz's (1977) paper, "Mass Culture and the Eclipse of Reason: The Implications for Pedagogy":

In his book The Eclipse of Reason, Max Horkheimer, founder of the Frankfurt Institute for Social Research, provided one of the most succinct formulations of the problem engendered by mass culture. According to Horkheimer, the significance of the challenge posed by the massified culture industry to civilisation as such consisted in its assault on the capacity to engage in critical thought as a meaningful form of social discourse. Horkheimer cared deeply about the content of critical thought, but with the rise of fascism he became more concerned with the spectre of the end of reason itself. In his view, the capacity of humans to distance themselves from the object in order to gain critical perspective upon their social world can no longer be taken for granted. The restricted language and thought codes produced by the reduction of all thought to its technical dimensions reach far into the culture, encompassing schools as well as communications, the public as well as the private spheres of discourse. It is no longer a question of whether ordinary discourse is able to deal effectively with issues of specific ideological and social content. As Jurgen Habermas expressed it, the new situation raises the issue of the competence of people to effectively communicate ideational content. The issue is the capacity for theoretical or conceptual thought itself. When people lack such competence, social action that transcends the struggle for justice within the empirically given rules of social organisation and discourse is impossible. (p. 768)

The problem to which Aronowitz addresses himself is that of our capacity to think critically about our social world. Technology has outrun the capacity of the ordinary person to understand: the legislative complexity and bureaucratisation of the administrative procedures of our society block off the layman's understanding of access to broad arenas of social organisation. We have become, it seems, the instruments of the very social procedures and techniques we invented in order to instrumentate the world to our needs and our desires.

It is no solution to hope that these cultural trends can be reversed: only the romantic believe that the way out of our cultural predicament is backwards. Fundamentalist religious zest and "small is beautiful" technologists cannot restore a presumed former state of innocence. There is no way back into the Garden. The technology awaits its use; the cultural desires which created it, once awakened, seek their fulfilment.

The scientists who developed nuclear technology during the Second World War faced personal crises because they knew that its capacity, once discovered, could not be covered up again (Jungk, 1960). Our choices seem not to be about the usefulness of the technology (for better or for worse, it was designed to be useful), they are about its wise use: we must control technology through wise and prudent use of its resources. To use it wisely, we must develop new social, political, and procedural resources for critique, the capacity to "out-think" our technologies and to see the limits of their utility. The "spaceship earth" image, coupled with a vigorous ecological movement, has enabled us to see how our technological development efforts have turned on us and against each other. The "green revolution" liberates the capacity to feed the world's population but creates monocultures; our economic systems do not permit equitable distribution of these food resources without destroying the profitability which makes overproduction possible. In order to comprehend and cope with these contradictions, we must develop ways of sharing knowledge which liberate the power of critique and ways of making decisions which allow us prudently to control their consequences. We require as much boldness in critique and the sharing of knowledge as is presently invested in the production of technologies and their use for profitable purposes.

These are urgent imperatives. In education, as elsewhere in society, we need to re-establish the means by which we can recognise one another's social being and develop a critical perspective from which we can more reflectively control our development as a society and as a culture, as well as our development as a political economy.

The problem, as Aronowitz points out, is that we have been so dominated by the technical problems of our technological age that we tend to be satisfied by purely technical solutions. These tend to be "mass solutions": abstracted, generalised, universalised, pragmatic strategies for solving problems of a given type or class. They may or may not be solutions to our own problems. More importantly, because they are "off-the-shelf" solutions, they may distract our attention from the reality of our own situation, leading us to see this or that aspect with which a given technology can cope, and ignoring the wholeness, the manifold reality of our own situation.

There is a place in War and Peace where Tolstoy is discussing the question of free will and determinism. He makes a point there which bears closely on our discussion:

Only in our conceited age of the popularisation of knowledge, thanks to the most powerful weapon of ignorance - the diffusion of printed matter - the question of the freedom of the will has been put on a level on which it can no longer be the same question.

In distance education, we are, of course, very much involved in the business of the diffusion of printed matter (Tolstoy would undoubtedly have said the same of our audio and videotapes, and the impending computer revolution in distance education), and so there is a parallel between our primary task and the evaluation of that task. On the one hand, there is the trend to mass culture and the technologisation of reason; on the other, a concern for conviviality, for preserving a very human dimension in our affairs. In distance education there has long been a concern for humanising the processes of long-distance communication, for preserving the intimacy of the relationship between the learner and the teacher. At its worst, this has been regarded as a purely technical matter - a matter of motivation only, not of regard for the human dignity of both actors in the educational encounter. In contrast to this technical view, Ivan Illich (1971) proposed a system of "learning webs" (or networks, or exchanges) whose aim was to preserve conviviality while also maintaining the possibility of education at a distance. These were: reference services to educational objects, skill exchanges, peer-matching, and reference services to educators-at-large. There was considerable interest in those revolutionary ideas in the early 1970's, but they seem to have succumbed to the power of

another image - the mass culture image - of what education is and should be. They are now frankly dismissed by many as hopelessly romantic and in any case as more appropriate to Third World educational problems, not our own.

Perhaps the mere mention of that name - Ivan Illich - is irritating. Surely, some will say, those disquieting images and disturbing possibilities were laid to rest six or seven years ago. Or were they? It is my belief that the countervailing tendencies to technologisation on the one hand and conviviality on the other are as strong today as in the late 1960's and the early 1970's. As much as we may be concerned about the systems we have developed, we are concerned that we can recognise ourselves and one another in them as persons, not merely as instruments of economic processes.

This contrast between technologisation and conviviality had its counterpart in educational evaluation. On the one hand, there are trends abroad for efficiency in the management of mass education systems which represent the technologising view in educational evaluation; the development of a program for national assessment of educational performance in Australia is a stark manifestation of that trend. On the other hand, recent developments in evaluation methodology like Stake's (1975) "responsive" evaluation and Parlett and Hamilton's (1976) "illuminative" evaluation express an interest in conviviality, manifested in their use of the *verstehen* method which aims at empathetic understanding. They invite the more widespread use of interpretative methods (as opposed to the empirical-analytic methods of the "engineering" or "agriculture-botany" approaches).

The literature of "program evaluation" (though perhaps many do not now grace their present evaluation efforts with that graceless name) reveals that those two tendencies are chafing against each other within the field and in the work of program evaluation. Many may think of program evaluation as pure technology and as technologised. Many writers in the field are guilty, I believe, of promoting a technologisation of our reason in advocating models of evaluation based simply on inadequate models of rational management. Liberal and gentle souls thrust into organisational evaluation settings, they choose the carapace of rational management as protection. Spare a thought for evaluators: their judgments make real people vulnerable and have real consequences for organisations. It is sometimes an uncomfortable role (though a good deal more comfortable than the role of the evaluatee). Some evaluators find it safer to choose the dispassionate, objectivist methodology of the rational management approach to blunt the knife-edge of conscience. Others believe in the possibility of a purely rational society in which utilitarian ethics can ultimately advantage all.

Still other evaluators are willing to find more human solutions and to try the human way: they see conviviality as a goal, even in conflict, and propose less rationalistic methods. They demonstrate that conviviality in program evaluation is possible.

I hope to show that it is possible in program evaluation to resolve some of these issues. Technologisation of reason in the name of objectivity is not enough; conviviality by itself can be a purely romantic notion. Beyond conviviality is the flintier, grimmer prospect of social criticism; "flintier" and "grimmer" not because the prospect of social criticism is grey, but because the task is a harder and more demanding one. It is the task of rebuilding institutions on the shifting sands of political alliances and defining their images in the mists of ideology, of contending rhetorics and aspirations. As such, it entails not only organisational change but cognitive change. As the Chilean physiologist Humberto Maturano (1974) has argued, any attempt to change society requires us to change the way we live; and this requires changes in both the cognitive and the cultural domains.

Before proceeding further, it may be as well to make one important note with respect to program evaluation in distance education. While in many respects distance educa-

tion differs markedly from conventional education, in questions of program evaluation it is generally similar to conventional education. To be sure, there are differences in the character of the programs to be evaluated, especially in relation to the "delivery systems" and modes of communication with students, but there are nevertheless strong similarities: distance education course-developers work together as conventional course-developers do, the institutions offering distance education are educational institutions, and so on. In what follows, I have chosen to speak about program evaluation in general; I believe that my arguments apply as much to program evaluation in distance education as to more "conventional" forms of educational provision.

PROGRAM EVALUATION

It is by now more or less customary in evaluation to distinguish between evaluation and assessment. Assessment of student performance - evincing a concern for the outcomes of a course, curriculum, or whole program - is only a small part of evaluation. Beyond student assessment, I would like to direct your attention to at least the evaluation of student learning (the evaluation of the opportunities for learning provided by a course, curriculum, or program), curriculum evaluation (the evaluation of the whole set of educational, social, administrative, and physical arrangements made by teachers and course-developers for students), and program evaluation (which includes the former types of evaluation but expands them into the realm of the whole institution providing these educational arrangements).

To put it very crudely indeed, evaluation might be considered at four levels, each including subsequent levels within its purview:

- (1) program evaluation, concerning general institutional arrangements;
- (2) curriculum evaluation, concerning the educational arrangements of whole curricula and particular courses;
- (3) the evaluation of student learning, concerning the opportunities for learning created by a particular teaching/learning encounter; and
- (4) student assessment, concerning the outcomes of student learning.

At the most general level, there is a range of alternative models of evaluation. The relationships between levels in these models are blurred and often obscure, however: it would appear that most authors in the field have been guided in their model-building activities by an overriding image of the activity of evaluation. For example, Knox (1972) has in mind an image of the director of an adult basic education program who wants to collect fairly comprehensive data about how his program works, whom it serves, how they experience it, and where it can be improved. He provides a list of factors to consider under each of seven broad sub-headings for an evaluation plan:

- I. Background regarding the anticipated contribution of evaluation to program improvement
 - A. Primary purpose of evaluation for this course
 - B. Symptoms that indicated that the existing procedures were inadequate
- II. The approach to the evaluation plan
 - A. Ideas about evaluation to keep in mind
 - B. Types of evaluation data to be collected
 - C. Functions of the division that may relate to course effectiveness
 - D. Probable methods of data collection and analysis
 - E. Using the results.

Stake (1967) seems to have in mind the inquiring teacher or outsider observing a teaching/learning encounter, or a sequence of such encounters held together in the framework of a course. His "countenance" of educational evaluation consists of a matrix of antecedents, transactions, and outcomes by intents, observations, standards,

and judgments; the whole being considered against the background of the rationale of the program:

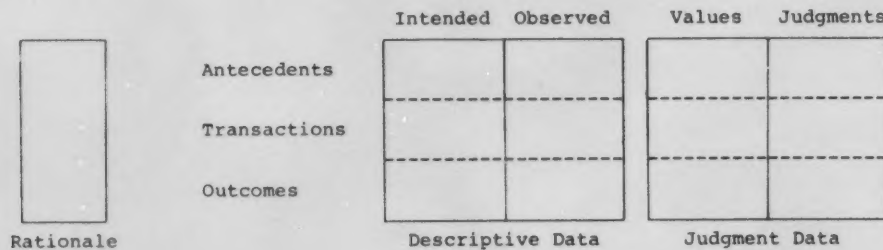


Figure 1: The matrix of Stake's "countenance" approach.

Stufflebeam *et al.* (1971) have a model in mind of the rational manager of an input-throughput-output system which leads them to set out a range of considerations under each of the global headings of Context, Input, Process, and Output (hence CIPPO) which can guide the evaluator towards data likely to be relevant in making decisions about the whole program.

These examples serve to illustrate the theme: that the evaluation of a whole program seems to be an extremely complex business, and that in order to reduce this complexity to manageable proportions specialists in the field have been guided by images of the task of the evaluator - harried program manager (in Knox's case), observer of educational encounters (in Stake's), or rational manager (or the servant of a rational manager, in Stufflebeam's).

For those interested in program evaluation in distance education, and especially in the evaluation of a distance education program as a delivery system, any of these three models might suffice. But, as my introductory remarks suggested, I think there are considerable dangers in treating an educational program as no more than a delivery system. By doing so, we may fall into the trap of technological reason: the trap of treating the delivery system as a technology which may be fine-tuned to improve its functioning or its efficiency, and thus of failing to subject it to substantive criticism as a form of life for students, teachers, ancillary staff, and observers.

I would like to turn now to a consideration of five classes of evaluation approaches or, as I should prefer to call them, five images of evaluation which have some currency today. These are the engineering model, the organisational model, the ecological model, the illuminative/responsive model, and the democratic model. After considering each briefly, I would like to raise one or two general matters and then offer a sixth model, the model of evaluation as self-reflection, which I believe surmounts some of the difficulties of the other five. The sixth model sets out to incorporate the two notions discussed earlier: conviviality and critical reflection. As it happens, the model of evaluation as self-reflection is (I believe) also the model closest to what we do in ordinary situations when we try to evaluate an educational program without the aid of specialist approaches to the evaluation task.

THE ENGINEERING MODEL

The engineering model of educational evaluation is the one most familiar to curriculum and instructional developers. Writing about this model in 1979, David Jenkins, Barry MacDonald, Gajendra Verma, and I had this to say:

Traditionally, educational evaluation has attempted to provide curriculum builders with some check on how well their intentions have been fulfilled in the educational performance of the program under development. This has resulted (in general) in a concentration upon developers' instructional

objectives and related student learning outcomes. This traditional model (which we call the 'engineering model' since it represents a technological solution to the problem of curriculum development) was first articulated by Tyler in 1934 and subsequently published as a curriculum for students of curriculum in 1949. In its most widely recognised form, it entails the following stages:

1. Secure agreement on the aims of the curriculum and/or course of study.
2. Express these aims as 'objectives' (i.e., explicitly stated student behaviours that the curriculum is intended to produce).
3. Devise and provide experience that seems likely to enable the learners to behave in the desired way.
4. Assess the congruence of student performance and objectives.
5. Vary the 'treatment' until behaviour matches objectives.

This model, which integrates the evaluation and development processes, has exerted a powerful influence on curriculum evaluation on both sides of the Atlantic during the last twenty years. It has substantial merits of simplicity, rationality, utility, and practicality. It specifies the task of the evaluator as that of measuring the extent to which the performance of students exposed to a particular educational treatment corresponds with the developer's expressed intentions. Almost all subsequent evaluation theorists have started from a consideration of this model, either extending and refining it, or reacting against it. (pp. 111-112)

In a critique of the engineering model, we marshalled criticisms which were becoming widespread and grouped them under several categories:

(a) Problems of sufficiency

The engineering model is too narrow in its focus. Data about student outcomes are insufficient for making judgments about programs. Data about program circumstances and processes are as important as data about outcomes in reaching judgments of the overall worth of a program. Moreover, as Stake (1967) most cogently argued, a variety of values are relevant in reaching a judgment of its merit (not just those of the program developers), and judgments will vary with the values of the judge. His "countenance" paper argued that the plurality of perspectives and judgments needed to be taken into account in evaluation.

(b) Problems of specification

The behavioral specification of objectives required by the engineering model also proved unacceptable to evaluators who attempted to use it and go beyond it. Eisner (1967, 1969) proposed that "expressive objectives" should also be considered in curriculum, not just behavioral. Moreover, it became clear that teachers did not always follow developers' objectives, that they pursued many different objectives simultaneously in their teaching, and that different teachers pursued different objectives. Behavioral specification, while apparently acceptable in a closed world of the developers' objectives, did not meet the requirements of the real world of education. Scriven (1973) also mounted an attack on the objectives-based model, arguing instead for "goal-free" evaluation, in which the evaluator made a deliberate effort to avoid learning the program's goals and thus to escape the "tunnel vision" of looking only for the intended effects of the program (as distinct from unintended or side-effects of program operation). Finally, there is the problem that the specified objectives of the engineering model depend upon consensus about what is to be learned: in educational programs where broader social aims are pursued, such consensus cannot be assumed. Behavioral objectives may propose a consensus, but curriculum developers and evaluators cannot assume that specification will reduce division about social goals; on the contrary, it may increase it.

(c) Problems of measurement

The engineering model requires that criterion behaviours for a program can be specified; it also requires that the discrepancy between desired and actual achievement can be measured. But there are massive technical problems of developing tests of adequate validity and reliability for the program itself and the population to be tested. Walker and Schaffarzick (1974) demonstrated how often inappropriate tests have been used in comparisons between innovative curricula and "conventional" alternatives, and how often the measured differences reflected the biases of the tests rather than the competence of students. Furthermore, in areas where broad attitudinal or social goals are being pursued by a program, tests are notoriously subject to bias - and the biases of the tests may or may not be the same as the biases of the programs under consideration.

(d) Problems of explanation

As Hastings (1966), Stake (1967), and Parlett and Hamilton (1976), among others, have pointed out, the engineering model, with its emphasis on outcome measures, fails to give evaluators or curriculum developers an understanding of why a program fails when it fails. It fails to show how learners learn, or why they learn some things and not others. Most audiences of evaluation reports are interested in the conditions of learning, not just what is learned. Hence there has been a growth of studies of educational "transactions" (Rippey, 1973), the "social anthropology" of educational innovation (Parlett and Hamilton, 1976; Smith and Pohland, 1974), and the conditions under which learning takes place (Kemmis, 1977). I have addressed the problem more generally in proposing the wider use of "ideographic" methods in evaluation (Kemmis, 1978), in which close descriptions are made of the learning process in the evaluation of student learning.

(e) Problems of epistemology

The final, most general set of objections to the engineering model relates to its basis in a positivistic view of knowledge and learning. As we shall see later in this paper, this "objectivist" view of knowledge turns out to be narrowly scientific (see Habermas, 1972), that is, it is premised on a view of science that regards the essential problem of the nature of truth as solved: according to this view, only technical problems in science remain; the nature of science itself is taken to be unproblematic. The danger is that the engineering model appears to treat evaluation data as value-free ("objective"). Yet, as Clarence Karier (1974) suggests, evaluation always has an ideological component; it always occurs within a value-framework:

It is my understanding that evaluation is a complex process of assigning values to phenomena, while ideology represents that set of values and attitudes which go to make up the composite picture of the social and individual philosophy by which men in a given culture profess to live. In this context, evaluation inevitably occurs within some kind of value orientation as part of an ideological framework.

To some observers, the whole corpus of scientific knowledge as we know it is a uniquely, even peculiarly Western product, reflecting a faith that all problems - of production, of action, even of the soul - will yield to scientific investigation. Only recently have there been indications that this faith has been substantially dented (for example, in the failures of American military science and social engineering to win the war in Vietnam). But these dents show little sign of breaking that faith (see Dawkins, 1980).

These problems with the engineering model might seem to have left it reeling, unable to attract champions in program evaluation today. But it is not so. The image which the engineering model embodies is a powerful one for our technological society, too

powerful, perhaps, to be easily recovered from the store of our cultural archetypes and symbols and subjected to critical scrutiny.

Eraut, MacKenzie, and Papps (1975) have commented on the "mythology" surrounding educational development and its evaluation. Among the mythological aspects they identify are the following: that learning is to liberate the learner (on the contrary they point to the implicit authoritarian model of teaching and learning embodied in the standard view of educational development); the myth that students are the clients (in their view, teachers turn out to be the clients); the myth that the main *raison d'être* of the paradigm is the improvement of students' learning efficiency (it turns out that students must adjust to the materials, not the other way around); the myth that student achievement is the all-important aim (it turns out that visible materials, not student achievement, is what counts); the myth that knowledge is constructed like building-blocks (their observations led them to see the growth of knowledge as the student's reconstruction of a whole overlapping set of clusters of concepts and methods which constitute the discipline); and the myth that individualisation of learning improves learning achievement by giving the learner control over the learning process (their observation is that learners have control only over the pace and place of learning; in the tertiary course they studied, students demanded a more profound kind of control over their own learning - control over the cognitive organisation of the course).

These mythological elements of the technological approach to educational development identified by Eraut, MacKenzie, and Papps suggest that the image of the engineering model has pressed deep into our understanding of educational development, but that the image is misleading. This is why it has a "mythological" quality. For this reason it may be asserted that the engineering model of educational development and evaluation represents a "technologisation of reason": it limits our thinking about these matters to technical and procedural dimensions. This reduction is fundamental to the model. It routinises the quintessentially human process of education so that it becomes more subject to technical management. In the next model to be discussed, the organisational model, this routinisation is projected on to an institutional plane: the interests of efficient management are extended to the management of institutions as social systems, subject to analogous technical thinking.

I have devoted so much space to the engineering model primarily because it is so profound a part of our culture, expressing so easily the technologisation of reason. It is, perhaps, the hardest image of program evaluation to extirpate from our thinking. Many evaluators have learned its limitations, however, simply by binding themselves to its dictates and then by considering how little of the life of the program they have captured in their methodological nets by applying it rigorously. There are others in the world of professional evaluation, though, who see things differently. The task to them is simpler; the world beyond the technology more dangerous. With a self-assurance rooted deep in our technological culture, they model themselves on Ulysses, stopping the ears of their companions with wax and tying themselves to the mast of their methodologies. Thus they avoid, they think, the grasp of the sweet sirens of the wider world singing from the shore.

THE ORGANISATIONAL MODEL

The second image of program evaluation is based on the image of the program as an organisation. It is represented by the view of Knox (1972) discussed earlier (the harried program administrator attempting to gather data on the wide variety of concerns which might bear on a program). This model has become widely established in procedures for school accreditation, school self-study, and school review. The procedures have been further developed and refined in the context of evaluation in higher education. Paul Dressel's (1976) Handbook of Academic Evaluation is representative of the genre.

The aim of the organisational model is essentially bureaucratic: to serve program managers (decision-makers) with the range of information relevant in keeping their programs or institutions on the right track. The model is one of rational management, the image supported by cultural values of scientific rationality, economic efficiency, and consensus about an institutional mission: in short, the image is of the organisation man.

There is something peculiarly lulling about the organisational model: as each dimension of the institution covered by the model is mentioned, a litany of relevant information is recited. Rational management turns out to be a daunting task. So many things to be taken into account by the wise and prudent evaluator! There is not space here to recite the list in full, but it may be helpful to intone at least the macro-headings, the main dimensions, listed by Dressel in his consideration of institutional self-study (itself but one weapon in the arsenal of the institutional evaluator):

- A. Determining institutional purposes, goals, and educational objectives (including a review of institutional documents, their consistency, the degree to which institutional sub-units are in accord with these goals, resource provision, and the degree to which the goals are acknowledged by individuals and sub-units throughout the institution)
- B. Measuring educational and other outcomes (including issues of what the outcomes are and whether all in the institution pursue them, the appropriateness of the outcomes to the clientele, the methods of assessment employed, institutional effectiveness in achieving other goals like community service and research)
- C. Evaluating learning experiences in terms of the desired outcomes (including issues of the types of experiences provided for students and the extent of their involvement in them, judgments of all relevant groups - teachers, students, administrators - and assessment of institutional climate)
- D. Evaluating the adequacy and utilisation of resources in terms of desired outcomes (including instructional staff, learning resources, financial resources, and physical plant and equipment)
- E. Evaluating the planning and decision-making processes in terms of the desired outcome (including questions of who is involved in these processes, the groups beyond the institution who influence them, student involvement, and considerations of evidence related to gathering this data)
- F. Interpreting objectives, means of attainment, and evidence of attainment to new faculty, to students and to the public.

(pp. 419-422)

There is a tremendous spuriousness and misplaced earnestness about such lists of relevant factors. One cannot deny their in-principle relevance to decisions about an institution, but the notion that any evaluation can achieve all of the data-gathering, analytic, and reporting tasks set out is absurd. At best, the exercise is superficial and misleading; at worst, it is a mechanism for subordinating those involved to institutional goals which are expressed at a supra-individual, rhetorical level. The goal of "the examined life" may be worthwhile, but there must be time left to live it as well. Following the comprehensive prescription of an evaluation system such as this is a sure way to get the inhabitants of the institution to leave evaluation to the experts. There is enough experience with such schemes in Australian schools for us to have some certainty that they tend to disaffect staff, to involve them in extensive data-gathering exercises which eat up scarce resources of time and

money, and to yield little in terms of actual change.

It is worth noting, too, that the organisational model begins as the engineering model does: with a prescription of goals. All else hangs on this prescription. The same objections to goal-oriented evaluation apply here as to the engineering model.

Put simply, there are four kinds of problems with the organisational model: it takes a view of the institutional world as a complex set of interacting variables and is driven to absurd lengths to control this complexity; it is so comprehensive as to defy genuine application; it is politically insidious - it subjugates the critical perspective of inhabitants of the institution to the perspective of the institution as a corporate entity in its own right; and it is goal-based, and therefore open to some of the criticisms made of the engineering model.

The organisational model I have presented here, the institutional self-study, has the redeeming features that it proposes the engagement of participants in a program in its evaluation and that it suggests the enormous variety of places where something can go wrong with an organisation. The first is essential to good program evaluation, the second may be helpful. But as I have tried to show, too great an earnestness about following the prescriptions of the model will lead those involved away from the issues they can do something about. In this sense it exemplifies clearly the danger of the technologisation of reason: it may deaden critical awareness in the slow grind of its progress rather than heighten self-criticism in convivial debate.

THE ECOLOGICAL MODEL

A new model for educational evaluation is emerging out of the ecological psychological literature (for example, Moos, 1976; Proshansky, 1970). A recent paper by Urie Bronfenbrenner, "The Experimental Ecology of Education" (1976), points the way for a series of developments which may be quite interesting in program evaluation. Bronfenbrenner argues that programs are only inadequately tested in artificial or laboratory settings; that when and how people learn is affected by the relationships between learners and the surroundings in which they live and the relationships between the settings which constitute their environment; and that the methodology of choice must be what he calls "the ecological experiment". He employs the terminology (adapted from Brim, 1975) of micro-settings (the immediate setting containing the learner - for example, home day-care centre); meso-systems (the interrelations between the major settings containing the learner at a particular point in his life - for example, home, school, peer-group, television); exo-systems (an extension of the meso-system embracing concrete, formal and informal social structures - including the major institutions affecting the life of the child, like neighbourhood, mass media, agencies of government, and informal social networks); and macro-systems (the overarching institutions of the culture or subculture - like economic, social, political, and legal systems).

The image which underlies this model of program evaluation, if such it may be called, is the image of the evaluator as ecologist, the program as ecology. I mention it here because the image is a powerful one for us today. The model expresses a widespread desire in our culture to understand our social life not just as a set of interacting variables, but as organic, structured, and functioning. It sees a program as "alive", but more than that, as part of a "living" context.

Bronfenbrenner's paper makes interesting reading. The early results he cites in support of his approach are encouraging. It will be interesting to see whether these complex ideas are taken up widely and tested rigorously.

But these are not the methods for a program evaluator. They are methods for a social science researcher who has the leisure and the distance from a social reality

to treat it as an object. In detail, the approach falls prey to the dangers of positivism cited in relation to the engineering model, and the problem of complexity raised with respect to the organisational model. (I do not mean that complexity by itself is a bad thing; rather, I mean to suggest that the kind of complexity these models deal in is hostile to understanding because it fragments our view of the program along the lines of its own analysis, not according to the problems perceived and experienced by those who inhabit programs as "worlds" in which they live.)

These first three models (the engineering model, the organisational model, and the ecological model) share a critical feature. All reveal an "objectivist" epistemology: the evaluator attempts to study the program "objectively" and dispassionately. All share an interest in value-neutrality with respect to the program. And all display what Habermas (1972) calls a "technical" knowledge-constitutive interest¹.

These approaches manifest most clearly the technologisation of reason, making critical self-understanding subordinate to program goals, bureaucratic organisational imperatives, or the "life" of the program as understood from a non-participatory (non-empathetic) perspective. The next three models to be discussed eschew the objectivist stance in favour of more empathetic and convivial approaches to understanding.

THE ILLUMINATIVE/RESPONSIVE MODEL

Recent evaluation literature has paid much attention to two relatively new models for evaluation: Parlett and Hamilton's (1976) "illuminative" approach and Stake's (1975) "responsive" approach.

Stake's responsive approach attempts to address issues raised by program participants rather than to import the questions of the evaluator into the program setting. He states:

An educational evaluation is responsive evaluation (1) if it orients more directly to program activities than to program intents, (2) if it responds to audience requirements for information, and (3) if the different value-perspectives present are referred to in reporting the success and failure of the program. In these three separate ways an evaluation plan can be responsive.

In deciding how to address the program, Stake's responsive evaluator is guided by the issues which concern those in and around the program. These issues guide the quest for data and the writing of reports. The evaluator is likely to choose to make portrayals of the program rather than report it in analytical terms. The aim is to convey something of the life of the program and the concerns of its inhabitants.

Similarly, Parlett and Hamilton's illuminative evaluation discards the analytical role in favour of an interpretative one. Parlett and Hamilton claim the authority of

1 Knowledge-constitutive interests are the human interests that motivate and guide the quest for knowledge. The empirical-analytic sciences (for example, the physical sciences) are guided, Habermas argues, by "technical" interests, that is, interests in technical control of the phenomena studied; the hermeneutic or interpretative sciences (for example, history) are based on a "practical" interest, that is, in understanding problems which have arisen and in accumulating experience which may guide us to act more wisely in future; and critical social science (for example, political economy, some approaches in sociology) is guided by an "emancipatory" interest, an interest in emancipating people from the mystification of ideology, the dictates of habit and precedent, or the compulsions of self-interested authorities.

social anthropology for their view. On reflection, it seems that a wider interpretative tradition informs the methodology - the interpretative tradition of *verstehen* sociologists (see Outhwaite, 1975) and the hermeneutic or interpretative tradition in social science and history (see Kemmis, 1978). The illuminative evaluator chooses issues in a situation which help the reader to grasp its wholeness and to develop an empathetic understanding *verstehen* of the lives of those who inhabit it.

These methods, in my view, have much to recommend them. They set about deliberately trying to disclose the life of a social situation, progressively focusing on issues of particular concern to participants and accumulating data along the lines suggested by those issues.

The development of the illuminative and responsive models was a response to some of the perceived shortcomings of the engineering model. At a conference at Churchill College, Cambridge, in late 1972, United States and British "dissidents" from the engineering approach gathered to discuss the emerging alternatives. Among their number were Bob Stake (a psychometrician increasingly disenchanted by the empirical-analytic approaches to evaluation which characterised his own former work); Malcolm Parlett (an experimental psychologist who was similarly disenchanted by the limits of analysis and had turned to sociology and social anthropology for an alternative); David Hamilton (an ex-geology graduate, ex-teacher who had become interested in the social processes of classrooms); Mike Atkin (one of the prime movers in developing a high-school astronomy course in the U.S. and one of the earliest writers on the shortcomings of the objectives-based approach - see Atkin, 1963); Lou Smith (already attracting substantial attention for his ethnographic work in classrooms - see, for example, Smith and Geoffrey, 1968); Barry MacDonald (chief evaluator of the Humanities Curriculum Project in Britain, adopting a case study approach and concerned with the way evaluation could serve decision-makers and wider audiences of evaluation, and becoming sensitive to the politics of evaluation); David Jenkins (an ex-medieval religious drama scholar, ex-teacher, evaluator of the Keele Integrated Studies Project, a wit and raconteur whose brilliance as a writer emerges in his evaluation reporting); and a number of other names now well known in evaluation circles.

Towards the end of the conference, a "manifesto" was drafted and endorsed by the participants. It was subsequently published in a "reader" on alternative evaluation methodologies, *Beyond the Numbers Game* (Hamilton *et al.*, 1977):

On 20 December, 1972, at Churchill College, Cambridge, the conference participants concluded a discussion of the aims and procedures of evaluating educational practices and agreed:

- I That past efforts to evaluate these practices have, on the whole, not adequately served the needs of those who require evidence of the effects of such practices, because of:
 - (a) an under-attention to educational processes including those of the learning milieu;
 - (b) an over-attention to psychometrically measurable changes in student behaviour (that to an extent represent the outcomes of the practice, but which are a misleading over-simplification of the complex changes that occur in students); and
 - (c) the existence of an educational research climate that rewards accuracy of measurement and generality of theory but overlooks both mismatch between school problems and research issues and tolerates ineffective communication between researchers and those outside the research community.
- II That future efforts to evaluate these practices be designed so as to be:
 - (a) responsive to the needs and perspectives of differing audiences;

- (b) illuminative of the complex organisational, teaching, and learning processes at issue;
- (c) relevant to public and professional decisions forthcoming; and
- (d) reported in language which is accessible to their audiences.

- III More specifically they recommend that, increasingly,
- (a) observational data, carefully validated, be used (sometimes in substitute for data from questioning and testing);
 - (b) the evaluation be designed so as to be flexible enough to allow for response to unanticipated events (progressive focusing rather than pre-ordinate design); and that
 - (c) the value positions of the evaluator, whether highlighted or constrained by the design, be made evident to the sponsors and audiences of the evaluation.
- IV Though without consensus on the issues themselves, it was agreed that considered attention by those who design evaluation studies should be given to such issues as the following:
- (a) the sometimes conflicting roles of the same evaluator as expert, scientist, guide, and teacher of decision-makers on the one hand, and as technical specialist, employee, and servant of decision-makers on the other;
 - (b) the degree to which the evaluator, his sponsors, and his subjects should specify in advance the limits of inquiry, the circulation of findings, and such matters as may become controversial later;
 - (c) the advantages and disadvantages of intervening in educational practices for the purpose of gathering data or of controlling the variability of certain features in order to increase the generalisability of the findings;
 - (d) the complexity of educational decisions which, as a matter of rule, have political, social, and economic implications; and the responsibility that the evaluator may or may not have for exploring these implications;
 - (e) the degree to which the evaluator should interpret his observations rather than leave them for different audiences to interpret.

It was acknowledged that different evaluation designs will serve different purposes and that even for a single educational program many different designs could be used.

Looking back on the "manifesto" from the perspective of 1980, it is hard to remember how challenging those ideas were. They were prefigured by the work of a considerable body of students of social and educational life, to be sure, but they represented an alliance of interests among a number of dissidents from the dominant evaluation paradigm on both sides of the Atlantic. The alliance continues to be a yeast to the dough of the evaluation literature.

The images represented by the illuminative and responsive approaches have venerable roots in social science, history, and the humanities. Perhaps it is a British characteristic which simply lightens the consistency of the sometimes extremely turgid (and U.S.-dominated) evaluation literature, but the illuminative and responsive approaches seem more literate, wittier, and more artistic than much of the work reported in the "conventional" evaluation literature. Here we see the evaluator as social anthropologist, case-study worker, historian, portrayal-maker, or artist. (Contrast the role of the evaluator as artist with the approach of Eisner, who developed the notion of evaluation as art criticism - Eisner, 1974.)

These are images which not only attract but compel. They attempt to overcome the technologisation of reason with an art form. They attempt to heal the fragmentation of our understanding of a program produced by analytic (experimental, psychometric,

objective-based) methods and to provide holistic descriptions on the basis of which we, as readers, can judge the programs they portray for ourselves.

But the healing process is not so easily achieved.

The recipients of the first products of the "new wave" evaluation, as it came to be known (Stenhouse, 1975), must have been somewhat surprised by the sheer readability of the reports. But the response seemed short-lived. Very soon, the reports were being condemned as "subjective" and "impressionistic". It was argued that they could only be produced by a certain kind of person (the methods were so poorly understood that they could not be regarded as rigorous by audiences who had come to equate rigour with the rigidity of the prevailing technology). A long debate about the qualitative *versus* the quantitative and the objective *versus* subjective in evaluation began, though some might prefer not to describe it as a "debate"; opponents seemed to talk past one another as often as they bumped heads.

I have dwelt so long on the topic of illuminative and responsive models because they represent a substantial challenge to the engineering model in particular. And the challenge has been successful at least to the extent that the alternative approach has established itself as legitimate.

But several difficulties with illuminative and responsive approaches remain. The first is the problem that it is dismissed as "subjective" and "impressionistic". That these responses are based on ignorance of the methodological pedigree of the *verethen* (empathetic understanding) and *hermeneutic* (interpretative; based on the scholarly tradition and history - see Gadamer, 1975) traditions need not concern us here. What should concern us is that this dismissal of illuminative/responsive evaluation reveals that the reports are not regarded as credible. This is, of course, a fundamental problem for an approach which is built on the notion that evaluation should speak to the concerns of participants and in their own preferred languages. I take it as an indicator of the extent of the technologisation of our reason that this failure to treat the reports of illuminative/responsive evaluation seriously should occur at all. Such is the imperialism of scientific thought that it believes there are no truths to be told outside its own language. (How then do we justify history or criticism? As pastimes for effete intellectuals?)

The second difficulty is that posed by Walker (1977) in a paper entitled "Descriptive Methodologies and Utilitarian Objectives: Is a Happy Marriage Possible?" (The title almost describes the whole argument.) The problem is that descriptive methodologies, especially when they aspire to acute observation and profound insight, take time. But that is the commodity program evaluators are usually short of. The "utilitarian objectives" of evaluation - getting the information to the decision-maker before the decision is to be made - are antipathetic to the descriptive objectives. Walker's argument may lend support to those who argue that the reports are "subjective" or "impressionistic" if it is read to suggest that they may be so because they are produced under pressure of time. (I am not personally convinced that this criticism is fatal to the project of illuminative/responsive evaluation; the process of "negotiation of accounts", to be discussed later in relation to the "democratic" approach, at least mitigates the force of the argument. Moreover, the process of writing up at least part of the life of a program, even if imperfectly, may help people to make wiser judgments of it; it is in my view a crass mistake to believe that no knowledge is better than arguable knowledge about a program.)

A third difficulty is that these approaches tend to fall by one of the criteria they value most highly: the criterion of authenticity. The notions of "responsiveness" to participant and audience concerns, of "progressively focusing" on issues which compel those in and around the situation, and of "participant confirmation" (or "the shock of recognition") as guarantees of authenticity are challenged by the notion

that it is not participants themselves but professional evaluators who shape the accounts. Perhaps this seems a purely technical problem: participants don't have the time to carry out the evaluation for themselves, don't have the appropriate skills, can't easily mediate with evaluation audiences with whom they have already-determined relationships. But it is not a merely technical consideration: the outside observer understanding and reporting on the program is doing something fundamentally different from the insider-participant who must live with the consequences of the evaluation, with the meanings reclaimed from its life, and the reputations the evaluation establishes or diminishes.

Though illuminative and responsive approaches are more convivial than their forebears in the evaluation literature of the last two decades, they have this Achilles heel: that the life of the program is reconstructed for participants, not by them. In this sense, the illuminative/responsive evaluator still provides a technical service to the knowledge-generation processes of the program community. By specialising the knowledge-generation process with a band of professional evaluators, illuminative and responsive approaches preserve a crucial remnant of the technologisation of reason: someone else, not program participants or program audiences, knows best about how knowledge of the program is to be distilled and reported.²

THE DEMOCRATIC MODEL

The "democratic" approach to program evaluation attempts to provide a solution to this problem. It moves from the realm of processes of understanding social contexts to the question of the politics of information in evaluating them. In a sense, the shift from illuminative/responsive to democratic models parallels the shift from the engineering to the organisation model. Both the organisational and the democratic models incorporate an elaborated view of the institutional uses of approach. In a widely-cited paper, "Evaluation and the Control of Education", MacDonald (1976) distinguishes between bureaucratic, autocratic, and democratic approaches to the evaluation of programs:

Bureaucratic Evaluation

Bureaucratic evaluation is an unconditional service to those government agencies which have major control over the allocation of educational resources. The evaluator accepts the values of those who hold office, and offers information which will help them to accomplish their policy objectives. He acts as a management consultant, and his criterion of success is client satisfaction. His techniques of study must be credible to the policy-makers and not lay them open to public criticism. He has no independence, no control over the use that is made of his information, and no court of appeal. The report is owned by the bureaucracy and lodged in its files. The key concepts of bureaucratic evaluation are 'service', 'utility', and 'efficiency'. Its key justificatory concept is 'the reality of power'.

Autocratic Evaluation

Autocratic evaluation is a conditional service to those government agencies which have major control over the allocation of educational resources. It offers external validation of policy in exchange for compliance with its recommendations. Its values are derived from the evaluator's perception of the constitutional and moral obligations of the bureaucracy. He focuses

² Note, however, that Stake and some co-workers have proposed that program participants develop their own evaluations or portrayals of their own situations. See, for example, Stake, *et al.* The Accountability Notebook (1971), Grotelueschen and Kemmis's (1973) notion of an evaluation file, and Stake and Scheyer's (1976) self-evaluation portfolio.

upon issues of educational merit, and acts as expert adviser. His techniques of study must yield scientific proofs, because his power base is the academic research community. His contractual arrangements guarantee non-interference by the client, and he retains ownership of the study. His report is lodged in the files of the bureaucracy, but is also published in academic journals. If his recommendations are rejected, policy is not validated. His court of appeal is the research community, and higher levels in the bureaucracy. The key concepts of the autocratic evaluator are 'principle' and 'objectivity'. Its key justificatory concept is 'the responsibility of office'.

Democratic Evaluation

Democratic evaluation is an information service to the community about the characteristics of an educational program. It recognises value-pluralism and seeks to represent a range of interests in its issue-formulation. The basic value is an informed citizenry, and the evaluator acts as broker in exchanges of information between differing groups. His techniques of data-gathering and presentation must be accessible to non-specialist audiences. His main activity is the collection of definitions of, and reactions to, the program. He offers confidentiality to informants and gives them control over his use of the information. The report is non-recommendatory, and the evaluator has no concept of information misuse. The evaluator engages in periodic negotiation of his relationships with sponsors and program participants. The criterion of success is the range of audiences served. The report aspires to 'best-seller' status. The key concepts of democratic evaluation are 'confidentiality', 'negotiation', and 'accessibility'. The key justificatory concept is 'the right to know'.

The image of democratic evaluation thus poses a sharp challenge to the organisational model (which is essentially bureaucratic). The democratic evaluator stands outside the program as an independent, disinterested observer though not an "objective" one: the "objective" outsider is serving "scientific" interests and thus adopts an interested, autocratic stance. He/she attempts to advocate the contending perspectives within it by proxy, fully and fairly, to regulate the processes by which participants come to agree that their perspectives are adequately represented (negotiation of accounts) and by which these views are gradually released to other participants in the situation (negotiation of release). The procedures for handling these negotiations are now susceptible of articulation and formulation as "principles of procedure" for evaluation studies (see Kemmis and Robottom, 1980).

The image of the democratic evaluator has its racier or more sinister side (depending upon your point of view): it is the image of the investigative journalist. This image is largely compatible with the image of illuminative or responsive evaluation, though perhaps it recognises itself as more "reactive": the investigative journalist shapes public affairs by reporting them; he/she does not merely report. (MacDonald, 1977, refers explicitly to the model of the "new journalist" as a source of techniques for the evaluator.) But it has another side too: that of the open-minded, concerned observer (based on the model of the "neutral chairman" of the Humanities Curriculum Project of which MacDonald was the evaluator - Jenkins, Kemmis, and Atkin, 1977) who attempts to see that reason rather than political muscle wins the day as differing views of a program are shared among participants, and between participants and program audiences.

This latter part of the image of the democratic evaluator - as neutral chairman in a "discussion" about the program - is especially attractive. While in other respects the democratic approach is subject to the failings of the illuminative and responsive approaches, it is an attempt to overcome the political problem of authenticity: it

attempts to respect the autonomy and responsibility and the reasonableness of program participants.

It is clear, however, that the democratic evaluator is still providing a technical service to a program community: that of "neutral chairmanship" in the debate about the program. Perhaps this is technologisation of reason: certainly the techniques for production and distribution of knowledge about the program are procedurally bound. But I do not think that it can be so described: on the contrary, the democratic approach fosters, rather than denies, the capacity for critical thinking about the program. It thus comes closest of the images of evaluation so far discussed to achieving both conviviality and critical capacity.

Its failing, if such it may be called, is that the process of democratic evaluation as described by MacDonald is one of intervention into the social world of the program to provide this key service on behalf of program participants. Though it may provide a model of conviviality and criticism, it does not necessarily implant the model in the situation. As the notion is expressed by Jurgen Habermas (1974), the ultimate problem is to create conditions within a program through which self-reflection may be established and sustained by participants on their own behalf. It is a problem of "the organisation of enlightenment", guided by an "emancipatory" interest (that of rising above the dictates of habit, precedent, coercion, and material constraints towards greater reasonableness, self-awareness, discipline of thought, and self-control and towards greater self-determination based on autonomy and responsibility and an awareness of the autonomy and responsibility of others). We will return to these notions in a later section.

THREE GENERAL ISSUES

Before proceeding, I should like to return to three general issues of concern in evaluation theory and method: the question of the objective and subjective views of knowledge, the question of conviviality, and the question of autonomy and responsibility. By returning to these issues, I hope to emphasise several points made in my survey of images of program evaluation so far.

(a) The question of objective and subjective views of knowledge

Many evaluators trained in social sciences have developed a perspective on the role and function of social science which depends on the notion of "objectivity": the capacity of science to free itself from commitments on one side or another of a value-question. Such evaluators hope that science can be value-free.

This position has come under heavy attack in the philosophy of social sciences in recent years (see, for just one example, Petrie, 1972). According to these writers, social science is not value-free: even the questions we ask are shaped by a framework of our own (or our culture's) values and interests. Habermas (1972) introduced the concept of "knowledge-constitutive" interests to describe the ways in which our inquiries are shaped to serve our values and our interests.

Maturana (1974) outlined the difference between the "objective" and "subjective" views in considering the question of the unity of mankind. According to the "objective" view, he suggests, men exist in an objective world that can be known and which exists independently of us as observers; our sense organs give us reliable knowledge of this world. The consequence of this view, he argues, is the view of mankind which sees us as genetically equivalent, differing only in levels of endowment in physical or intellectual terms; which sees cultural differences as reflecting different modes of treating an objective reality; and according to which the cultural unity of man can be obtained only through the development of a culture in which men base their conduct on objective knowledge - that is, through the development of a culture in which men have "the right way" of looking at reality.

In contradistinction to the "objective" view, Maturana puts the view of cognition as a subject-dependent phenomenon. According to the "subjective" view, cognition as a process is bound constitutively to the organisation and structure of the knower; our history of interactions in the world defines the world for us, and it simultaneously defines us as "units of interactions" with certain potentials for interaction. The consequence of this view in relation to the cultural unity of mankind is that cultural differences reflect, not different modes of treating the same objective reality, but legitimately different cognitive domains. Culturally different men live in different cognitive realities that are generated and specified by their living in them. The problem of the cultural unity of mankind, therefore, is not a problem of learning a single valid cognitive approach to objective reality (as rational empiricists would have it), but a problem of generating a common subject-dependent behavioral domain that defines a common subject-dependent reality. In short, Maturana argues that we should not expect to find the cultural unity of man by reference to a common objective reality "out there", as it were, but by living together so that we orient ourselves in common ways to the world and to one another.

This perspective is also implied by Wittgenstein's (1974) notions of "forms of life" and "language games". Truth, it may be argued, is not to be found entirely within language, nor is it to be found entirely outside language (it relates to propositions, not to experiences alone). Wittgenstein puts the problem thus:

So you are saying that human agreement defines what is true and what is false? - It is what human beings say that is true and false; and they agree in the language they use. That is not agreement in opinions but in forms of life. (p. 88)

The solution to the problem "How do we decide if a thing is true?" depends upon the way we use language, which in turn depends upon our having forms of life that are sufficiently comprehensible to one another to support communication.

By discussing the question of the "objective" and the "subjective" in relation to the ideas of Maturana and Wittgenstein, I have hoped to show that the "subjective", the bane of "objective" social science, is not mere opinion, not mere individualism of perspective. Both the "objective" and the "subjective" depend upon agreements about how language is to be used. We have in fact arrived at an "interactive-subjective" perspective (not the lone subject experiencing and yet unable to test or to communicate that experience).

The images of program evaluation discussed so far may be arranged along this dimension from objective to subjective. The "objective" approaches underestimate the manifold quality of the world we experience, and they fragment our understanding of it. The most "subjective" image presented here (illuminative/responsive) is not yet fully conscious of its potential conviviality - its capacity to enter the program being studied, not to stand aloof from it as observer.

Many social scientists hope that the battle between the "objective" and the "subjective" can be won at that level. But some recent philosophers of social science do not think that this can happen. For example, von Wright, in his book Explanation and Understanding (1971), argues that the two are simply incommensurable, that they are different modes which can never be reconciled; Habermas, in Theory and Practice (1974), however, argues that both are limited but that they can be transcended in critical self-reflection. Choose your own unhappy ending.

This brief excursion into the world of the "objective" and the "subjective" may convince you of little. But it may at least have raised the possibility that, to be convivial and to engage our understanding, program evaluation must have at least some element of the "subjective". Without the human process of expressing our experience

in communication and orienting to one another in common action, we cannot hope fully to understand. This is the downfall of the "objective" evaluator, as it is of the evaluator who stands on the sidelines of the action as commentator or critic. As Mao Tse-tung once put it: "If you want to understand reality, you must participate in the struggle to change it."

(b) Conviviality

Harry Wolcott³, an ethnographer of education, was called upon to discuss a paper given by two evaluators of a technical/engineering/organisational cast of mind at the Annual Meeting of the American Association for Research in Education in San Francisco in 1976. These evaluators had defined evaluation as "the collection of data to guide decisions to continue, revise, or terminate programs". "If you were an ethnographer," Wolcott remarked, "how would you like your material to be used to continue, revise, or terminate another culture?"

The question is a pressing one for program evaluators: by adopting a technical role with respect to program participants, the evaluator necessarily puts himself outside the life world of participants. Yet they must live with the consequences of the "truths" the evaluator tells.

In a recent paper on case study in research and evaluation (Kemmis, 1979), I argued that evaluators are, or seem to be, ruled by three "tyrannies":

- (1) the tyranny that there is a truth to be told and that we can tell it;
- (2) the tyranny of conscience: that we believe we have a duty to arrive at judgments of the worth of social and educational programs, and to communicate these judgments - our judgments - to others; and
- (3) the tyranny of reporting: that we have a duty to commit these 'truths' and judgments to paper and, through them, to create 'the public meaning' (or at least 'a public meaning') of the work.

I see these tyrannies as evidence of the technologisation of our reason as evaluators, as evidence of what Sartre (1957) would describe as "bad faith" - our willingness to subjugate ourselves to a role thrust upon us sometimes by circumstance and sometimes by sponsors offering reputation or financial reward. (I am reminded of a Goon Show in which Eccles had been left to guard the door and keep out newspaper reporters while a secret meeting took place. The reporters managed to get into the meeting and Neddy Seagoon was demanding an explanation from Eccles. His reply? "They burst through by forcing money into my hand.")

The technologisation of our reason as evaluators and its attendant bad faith are made possible by the perspective we are invited to take on the program: we are observers, program participants are the observed; we are the specialists, the program contains pathologies we are to diagnose; we are the therapists, participants must be demystified; we are the disinterested enquirers, participants are bound by self-deception and self-interest that only we can unravel and dispel. It is not surprising that we submit to the bad faith of the role: we are paid well for our work - in money, opportunities, or reputation. And it is we, after all, who are the reputation-makers, with the power to distribute praise or blame, to confer the appellations "failure", "modest failure", "noble failure", "success".

3 Wolcott's (1977) book *Teachers vs. Technocrats* bears greatly on our discussion - being both an ethnography (and thus a potential source of justification for advocates of the illuminative model of evaluation) and a treatment of the problem of lack of conviviality in program management and evaluation using the technology of PPBS (Program Planning and Budgeting System).

Perhaps this characterisation seems extravagant or glib. But it is closer to the truth of the program evaluator's role than many would care or dare to admit. It is certainly the way in which we are perceived by a great number of those who suffer our services. And it is often the role we are enjoined to accept (quite deliberately) by evaluation sponsors - we can say harsh things and go away, the sponsors (who are very often the sponsors or administrators of the program too) must stay to live and rule another day.

Earlier, I pointed out that the value of authentic knowledge is that it provides a basis - the only certain basis - for program change. By "authentic knowledge", I mean knowledge grounded in the lives and circumstances of participants. As Illich (1971), Freire (1970), and Habermas (1974) have been at pains to show, the capacity for critical self-reflection can only be developed in the language and perspectives of participants if the changes in a program are to "take" by conviction rather than coercion. As program evaluators outside other people's programs, we cannot tell only our truths; we must participate in the process of developing critical self-reflection alongside participants, as participants.

This is the way of conviviality. It is the development of critical self-reflection out of the talk and the (authentic) experience of co-participants. Language creates the possibility of critical thought (though it never guarantees it). The language of critical thought must recognise the experience and the language of those who want to participate in the critical debate; it must be self-reflection as well as critique of the social world of the program.

(c) Autonomy and responsibility

In any discussion of program evaluation, the question of autonomy and responsibility must arise. It is inextricably linked to the question of control of the program, since evaluation, whenever it aspires to influence program action, concerns program control.

Moral responsibility for an outcome can only be ascribed to a person to the degree that his or her free choice of action as an autonomous moral agent was a cause of that outcome. Just as the evaluator must assume that those involved in a program act rationally in the sense that they are open to arguments based on reason, so it must be assumed that they will act as autonomous and responsible moral agents.

This said, it becomes evident that a program is a community of self-interests (House and Care, 1977) based on the commitments of participants within the limits of their freedom, the opportunities and circumstances of the program setting, and the knowledge available about the consequences (intended and unintended, anticipated and unanticipated) of the program.

The autonomy and responsibility of those involved in a program are assumed by some of the images of program evaluation discussed here and negated by others. Indeed, it is a feature of the more "technological" models (especially the engineering model and the organisational model) that participants are treated as having subjugated themselves to the technology of the program. (In the use of the ecological model, it would appear that actors are assumed to be, to a greater or lesser degree of systemic constraints, determined rather than free to act as moral agents.) Program conditions which require this subjugation of participants may be coercive; program evaluators who assume this subjugation of participants are likewise coercive.

These three questions of "subjective" and "objective" views of knowledge, conviviality, and autonomy and responsibility must be actively considered in the development of a model of program evaluation capable of avoiding the limitations of the images of evaluation presented earlier. It is with these questions in mind that I now propose a sixth model of program evaluation: evaluation as self-reflection in the community of self-interests formed by a program.

EVALUATION AS SELF-REFLECTION IN A CRITICAL COMMUNITY

Jevons (1979) has remarked that the strategic aim of a tertiary education institution is that it become "a learning learning system", that is, a learning system capable of learning from its own experience. Schön (n.d.) has also raised the general question, "What is an organisation that it may learn?" He demonstrates that organisations do indeed learn from their experience.

Habermas (1974) has shown how this aim can be achieved in social organisation by the creation of conditions for "the organisation of enlightenment". He points out that three kinds of questions, each with its own criteria of adequacy, must be addressed in the organisation of enlightenment and the justification of action. First, at the level of scientific discourse, critical ideas which build towards a theory of the organisation must be developed. These must be tested against the usual canons of truth-telling. Second, at the level of the organisation of enlightenment itself, processes must be established which allow participants to engage in critical self-reflection on their own theoretical perspectives and practical commitments. These are to be judged by the criterion of free commitment to self-reflection and to the critical, co-operative project of establishing a consensus about social action based on mutual understanding and recognition of participants as persons in their striving for consensus. Third, at the level of practical action, processes must be established according to which practice can be improved and better adapted to the available opportunities and circumstances in the light of participants' intentions. Practical action must be judged by reference to the criteria of the wisdom and prudence of decisions about strategic action.

These three "levels" provide the substance for critical self-reflection. Kemmis and Hughes (1979) discussed evaluation as self-reflection in a critical community using these levels as substance for the discussions, and outlined an example of the approach in practice.

Beyond this substance, there is a need to create a climate in which self-reflective debate can be carried out. The appropriate climate is one described by the criterion for the organisation of enlightenment: that debate be carried out in an atmosphere of respect for persons and striving for consensus and mutual understanding. Kemmis (1980a) describes a strategy for developing the skills of "symmetrical communications" necessary to establish such a climate.

Seven principles for program evaluation describe the approach advocated here (Kemmis, 1980b). Together, they create an image of evaluation as the process of marshalling information and arguments which enables interested individuals and groups to participate in the critical debate (the process of self-reflection) about a program.

These principles are:

(1) The principle of rationality and reasonableness

Program participants act reasonably in the light of their circumstances and opportunities. It is the task of an evaluation to illuminate the reasoning which guides program development and evolution, to identify the contextual and historical factors which influence it, and to facilitate critical examination of these matters in and around the program community.

(2) The principle of autonomy and responsibility

Moral responsibility for an outcome can only be ascribed to a person to the degree that his or her free choice of action as an autonomous moral agent was a cause of that outcome. Curriculum development programs are co-operative enterprises in which individuals act as autonomous and responsible agents within limits of circumstance, context, and (sometimes) coercion. These factors limit individuals' accountability for

program actions and their consequences. Evaluators must illuminate the interactive character of accountability for a program.

(3) The principle of community self-interests

When a curriculum development project is formed, it is a community of self-interests - it represents the self-interests of all participants within its terms of reference. The evaluator has a responsibility to illuminate the extent of commonality and conflict among the values and interests of participants in this community.

(4) The principle of plurality of value-perspectives

A range of different value-perspectives becomes relevant in judging a program. An evaluation should identify these different perspectives and be responsive to the different concerns they imply.

(5) The principle of the self-critical community: internal evaluation, evaluation consultancy, meta-evaluation, external and independent evaluation

Critical debate about the nature and worth of a program already exists within and around its program community. It is the task of program evaluation to refine this debate and improve its bearing on program action. Evaluation consultancy may provide additional tools for this purpose. Meta-evaluation efforts may help to improve the quality of the contribution of a program evaluation. An external evaluation may contribute to the critical debate by increasing awareness of a particular set of values and interests relevant to a program; it should not be thought of as an alternative to the self-critical process. An independent evaluation may help to harness program self-criticism where the program community is diffuse or divided by controversy. Self-criticism by the program community is the primary basis for program evaluation; other evaluation efforts extend it in different ways but do not supplant it.

(6) The principle of propriety in the production and distribution of information

Evaluation processes inevitably affect the political economy of information in a program (the production and distribution of information about it). Because information and arguments justify or legitimise decisions, evaluation affects the distribution of power and resources in program situations. Program participants and interested observers live with the consequences of use and abuse of evaluation information. An evaluation should have explicit principles of procedure which govern its conduct and its processes of information production and distribution.

(7) The principle of appropriateness

Evaluation design is a practical matter. An evaluation must be appropriate to the program setting, responsive to program issues, and relevant to the program community and interested observers. An evaluation design must be renegotiated as the study progresses in the light of changing circumstances, issues and interests, and in the light of its own consequences (as they become apparent).

This, then, is the sixth and final image of program evaluation to be presented here. As distance educators, we must create the means to engage the community of participants in our programs (administrators, teachers, students, and others) in the critical debate about them. More than this, we must refine the critical debate according to the principles outlined here. In short, we must make the community of the program a community of inquirers: a group jointly committed to developing the program as an expression of our common striving for mutual understanding and consensus about social action.

Some methods for pursuing this goal are available within the evaluation literature. Others are being developed in wider contexts: one is the notion of "action research" (see, for example, Corey, 1953) which I am currently investigating in a research project (funded by ERDC) with Robin McTaggart (Kemmis, 1980c). We are exploring the potential of these methods for creating critical communities of course-developers, between teachers and students, and between schools and their communities. (Other collaborative research is being carried out in these areas at Deakin through the work of the Deakin University Action Research Group.)

The self-reflective approach is in some senses the most familiar notion of program evaluation. It is evident in a latent form whenever program participants discuss the life of a program with a view to understanding it in general, with a view to understanding it within the constraints of its context and circumstances (perhaps attempting to change its circumstances in order to overcome some of its limitations), or with a view to modifying program practice. In such circumstances, participants engage "naturally" in critical self-reflection on the principle of "concrete negation", that is, attempting to supersede the real constraints of present circumstances or present practice in the light of wider considerations.

Kemmis and Hughes (1979) proposed that this "naturally-occurring" form of self-reflection could be disciplined and extended by organisation of meetings of program participants for the primary purpose of critical self-reflection, as a conscious attempt to orchestrate the powers of critique in the program and thus to contribute to its theory, organisation, and practice. Such meetings simultaneously contribute to the improvement or justification of the program and program action.

Self-reflection meetings provide a focus and forum for critical debate about the program (a basis for program critique). They do not supplant critical self-reflection elsewhere in the program; rather, they promote its general development. Moreover, self-reflective meetings can involve a range of different groups relevant to the program: teachers, students, administrators, sponsors, clients, and interested observers can be invited to attend. In this way (cautiously and progressively) these groups can make their perspectives known and have them incorporated in (or excluded from) program justifications and action.

The meetings may have a slightly ritualistic quality in the sense that they do provide this forum and focus. A touch of formality may need to be present in the proceedings (a chairperson, explicit rules of order) in order that disparate views can be expressed and considered adequately. Nevertheless, the procedural aim must be to establish symmetrical communications as a way of working towards mutual understanding and consensus. Thus part of the procedure must be to solicit perspectives across levels of the hierarchy of program organisation and administration (if it is hierarchically organised, as most programs are), and across degrees of participation (from "insider" to "outsider"). Naturally, the meeting itself must have powers of decision which are binding on participants if it is not to be abused or co-opted by administrators as a means for pseudo-rational coercion or domination of participants (that is, subjugating the critical process to administrative self-interests).

The general problem with which this paper began was the cultural problem of the technologisation of reason. This technologisation undermines our capacity to engage in critical self-reflection. It is most evident in the engineering and organisational models for program evaluation, but the ecological, illuminative/responsive, and democratic models are not yet complete in throwing off its shackles. In one way or another, they limit authentic critique. At the general level, the technologisation of reason undermines our capacity to take a critical view of our own culture; at the particular level, it undermines our capacity to take a critical view of the educational programs we develop and of which we are members. The method of self-reflection in a critical community is an explicit attempt to create the conditions for authentic critique.

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CONFERENCE DINNER ADDRESS - NEW HORIZONS IN DISTANCE EDUCATION

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Distance education at the tertiary level in Australia has a long and distinguished history. Beginning with the University of Queensland in 1911 and R.M.I.T. some eight years later, distance education spans almost three quarters of a century. During this time we have seen enormous changes:

- . vast increases in enrolments;
- . changes in the composition of the student population;
- . an ever increasing range of courses available;
- . studies at graduate level and in the professions and sciences;
- . improved quality and variety of teaching materials;
- . more effective "delivery" services; and
- . enhanced support services for the student at a distance.

Moreover, the improvements in distance education have often led to improvements in the university and college classroom. The interesting point is that most of these changes have occurred in the space of the last ten to fifteen years.

It is my contention that, no matter how remarkable those changes have been, the changes in distance education in the next decade or so are going to be even more significant. Let me support that proposition by looking at new horizons in distance education under the five headings of philosophy, students, research and evaluation, communications technology, and institutional co-operation. It is not my purpose to convert you to my point of view, but to point up the issues with which we should be grappling now and in the near future.

Well then, what are the new horizons in distance education?

THE PHILOSOPHY OF DISTANCE EDUCATION

At the risk of oversimplifying, I believe we have seen three broad philosophies of distance education in Australia, with a fourth just emerging.

The earliest of these could be called the philosophy of access. It assumed that if a student could attend classes on campus, he should attend: distance education was only for the student who needed to acquire qualifications and who was too remote to attend classes. For most of these students it was a matter of being permitted to enrol, receiving a minimal amount of teaching material, working through courses by themselves, and then sitting the examinations. It was a philosophy that saw the institution's responsibility as largely to provide access: the rest was up to the student.

Then a change occurred. The philosophy of access was found wanting at least by some. It was now seen that, once having admitted a student, an institution had a responsibility to "teach" that student. To discharge this responsibility, the student was provided with copious quantities of material: notes, articles, tapes of lectures, indeed anything that could be produced easily and could be economically sent to the student. In comparison with the dearth of materials provided within the previous philosophy, it was a relative feast. But it was left to the student to introduce order into this abundance and to determine the relative value of the material. It was an improvement aimed at reducing the educational impoverishment under which the distance student had previously laboured. It was more than access, it was the philosophy of equal opportunity.

However, it was not long before people became more concerned with the notion of equality, that is, ensuring that the education received by the distance student was equivalent as far as possible to that enjoyed by his on-campus counterpart. The materials became more structured, parallels with on-campus course requirements were more closely observed, attendance requirements were instituted, the same staff were used to teach on and off campus, and students continued to sit the same examinations. All of these were regarded as important if the qualification awarded the distance student was to be of the same standing as the qualification gained by the on-campus student. Essentially it was a matter of equivalent standards, but the concern that prompted it led to dramatic improvements in distance education. It was more than opportunity: it was equivalence.

I am not suggesting that these philosophies were sequential. Indeed, I believe some of the earliest systems of distance education reflected a more enlightened approach whilst even into the late sixties more primitive expressions were still current.

Today, a new philosophy is emerging. It is not easy to describe and all I can do is to indicate the signs of change. Essentially it is the view that distance education is more than a matter of admission, materials, and assessment; that it is more than an alternative mode of teaching, valid though that may be; that it is, in fact, concerned with the complete learning experience of the student and that, in order to provide that experience, a whole educational sub-system is required. To develop the philosophy in detail would require more time than I have at my disposal. Let me instead make one or two points.

Most distance education systems at the tertiary level in Australia have been grafted on to existing traditional institutional activities. The on-campus operation usually dictates what is done for the distance student. The academic year, course approval and development, tutorial arrangements, counselling and other student services are all designed for the on-campus operation and then applied, often with minimal adaptation, to the distance education system. The result often is inappropriate and unsatisfactory. All this could be changed by the new philosophy, which will look at the component parts of a distance education system to see that each is appropriately designed for its purpose and that the parts are properly articulated to make a coherent and logical whole. The emphasis is on providing students at a distance with a complete and well-balanced educational experience that caters properly for their needs from pre-enrolment counselling to graduation.

It is a new philosophy.

STUDENTS

The changing nature of the student population engaged in tertiary education is well documented. An increasing proportion of women, many more mature-age entrants, and a much greater number of unqualified applicants now enter universities and colleges of advanced education. Whilst the trends have been evident for some years, it is very likely that distance education, with its emphasis on those disadvantaged by distance, has accelerated the changes in the composition of the student body. No doubt the trend will continue, but as well there will be other changes in the next decade of equal significance.

Let me sketch these briefly.

Firstly, the truly distant student will come into his own. Although distance education has done much for students who otherwise would not have been able to attend university or college, it is true that most off-campus students live in capital cities or other relatively large towns. For those students who are more isolated, the slow-

ness of the delivery system, the cost of compulsory residential schools, and the impoverished personal interactions can be all too discouraging. The fact is that within distance education, the more distant and isolated the students, the more disadvantaged they are. The efforts of the next decade will be directed towards minimising the disadvantages of distance and isolation to make distance education cater for the truly distant student.

Secondly, tertiary education is increasingly going to be for those with tertiary education. Within distance education, there will be an increasing demand for graduate and continuing professional education. Certainly teachers who wished to upgrade their qualifications have been well served. Increasingly, however, professional organisations are likely to require their members to extend their training, to engage in refresher courses, and to add to their credentials. Distance education systems are peculiarly well suited to meet the needs of the graduate who requires life-long education.

Thirdly, there are particular groups within our communities who are disadvantaged. One such group is the physically disabled: the blind, the profoundly deaf, and those with muscular and mobility problems. It is perfectly true that most tertiary institutions admit disabled students and do much to ensure their success. Usually, however, these are relatively exceptional students. The future lies in making educational opportunities available for those who are less exceptional but who, were it not for their disabilities, would have become successful tertiary students. Our distance education systems are splendidly equipped to provide for these students. Materials can be properly adapted, support services can be extended, and administrative arrangements can be modified to allow disabled students to enjoy a fully comparable learning experience.

The changing clientele of distance education is a new horizon.

RESEARCH AND EVALUATION

Distance education has suffered crucially from a lack of research. Perhaps the reasons are not far to seek. Until recently distance educators have been on the defensive. Their activities were regarded as a substitute for the real thing: face-to-face teaching. Their time and energy were devoted to securing a sufficient and fair share of available resources so that the job could be done reasonably well. There was just too little encouragement for distance educators to spend time on research and evaluation.

The advent of the Open University, with its emphasis from the beginning on research and evaluation institutionalised as it was in the Institute of Educational Technology, ensured that research interests not only were more acceptable but also were backed by considerable resources. This is not to deny that others have engaged in much useful research but rather to suggest that it has been a relatively neglected activity.

In Australia the situation has been no different. We were leaders in distance education, but the first sixty years produced little research. Today the tide is turning. The defensiveness is disappearing. Resource allocation is becoming more equitable. Whilst these things may be arguable, it is clear that many more distance educators are giving research a higher priority. Indeed this is the key to it. Time and resources will follow only if we ourselves show a greater commitment to research and by our efforts produce something worthwhile.

Let me comment briefly on one or two areas of research interest.

There is, of course, the evaluation of learning materials. Certainly student feedback is used to modify and improve existing courses. Yet the overwhelming impression of the revision of courses is that it is largely *ad hoc*. What is required is the sustained and systematic gathering, recording, and analysing of data, and the creative use of it in course revision. How many of our most cherished beliefs about features of our systems are unsupported by evidence? For example, are beautifully designed learning materials conducive to a better learning experience than roneoed materials? What do residential schools, compulsory or otherwise, contribute to the learner? In what ways are aud. and video programs used by students, and what is lost if students do not have access to them? Evaluation will help us to improve our materials.

Institutional research is needed to examine our delivery and support systems and to consider the possibilities of alternative technologies. Often we fail to see the possibilities of technology because the cost is thought to be too great. In many cases this is because we are not prepared to substitute for a less efficient technology one which, while it may cost more, does the job better. Our tendency instead is to add on rather than substitute, and in so doing we add to the cost structure. Within our institutions our programs are geared to the traditional academic year; administrative procedures are designed for the on-campus student; and student services are those appropriate for the 18-year-old school-leaver. Many elements of our systems will repay careful researching.

Finally, there is futures research. Whether we like it or not, distance education is highly dependent on technology. The choice is not whether we will use technology but whether the technology we use does the job effectively. In distance education, developments in communications technology are more relevant than in any other field of education. These changes are occurring rapidly. Not only do we have to use new technologies, but we have to use better the existing technology before it, in turn, becomes obsolete. The fascinating thing is that in distance education the new communication technologies are going to achieve in the end what we have all been seeking in many different ways: the personalising and humanising of distance education. The trouble is that without a sustained research effort the possibilities become actualities before we are ready for them.

Our progress will, in the long run, depend on our research horizon.

COMMUNICATIONS TECHNOLOGY

One of the problems of distance education systems is its dependence on communication systems that are becoming increasingly expensive and, some would suspect, less efficient. The problem is not that services, such as Her Majesty's mail, are just slow: they are erratic and unpredictable. Delays occur that can never be explained. Frustrating it can be at any time, but for students facing deadlines it can be disastrous. Even the telephone, which is so much more immediate, poses the problem of cost. Certainly the telephone is cheaper than travel but not cheap enough for students to use without concern. The present technology could be better used, but its limitations are quite severe. We need to look at new developments.

Let me draw a scenario describing one possible future in terms of course development delivery:

Today the academic who writes can have his draft typed and scanned directly into computer memory. He corrects a computer print-out and the corrections are keyed in on a Visual Display Unit. At the same time, codes for typesetting are inserted, and the computer photo-typesets the material. Each page now has the specified format, headings, marginal comments, diagrams, and copyright acknowledgements. The difference is that, instead of printing it, it will be held in computer mem-

ory as teletext. It is conceded that for many first-level courses the volume of such material may still be such as to require using a printed format for distribution. However, for second- and higher-level courses in distance learning systems, much of the teaching material specifically written for the course is more in the nature of a guidebook leading students through a range of educational materials and experiences.

The student enrolled in a course is now ready to study. He has a small economical microprocessor linked to his T.V. set and linked by modem to his telephone. He dials his local study centre where a mini-computer acts as a switching device accessing the main frame at the central campus. The student is able to call up his course material page by page and work through it! Should he require a facsimile, his copier will provide it. Much of the time he requires only to make notes for revision or study.

What a fantasy!

Already, however, the technology making such applications possible exists. It is becoming successively cheaper. Students undertaking a course over a period of years will be able to afford such equipment, the cost of which would be amortised over the length of the course.

Our student of the future can go a step further. At the end of his study period he may have a question he wishes to ask his tutor. Through his terminal he can convey a message to the tutor. His tutor can read his mail at his own terminal and can immediately send a return message. Again, electronic mail is a reality, and this is only an extension of it.

What has been described applies to the student who lives within a local telephone call of a study centre. The satellite will make it possible for the more remote student to enjoy the same privileges.

In similar vein, courses which use audio and video programs can have these broadcast by satellite. The video-recorder will soon be familiar in most homes and allow such programs to be recorded for later viewing.

All of this is very close. The problem is to prepare ourselves to take advantage of it. Whether we like it or not, new technology is on the horizon.

INSTITUTIONAL CO-OPERATION

Distance education by its very nature transcends boundaries. Within Australia, it makes State boundaries somewhat irrelevant. Developments such as communications satellites make national boundaries of less significance. Certainly institutional boundaries do not make as much sense as they did a decade ago. In some cases, such as the Open University and a number of Asian developments of similar type, the scale of operations is large, with each institution having a monopoly on its respective national distance education markets. For Australia, the situation is markedly different. No one institution is large enough to enjoy the economies of scale of the Open University. Indeed, so fragmented is the "market" that most Australian institutions teaching at a distance feel acutely threatened by their competitors. It is a matter of viability.

Despite this, co-operation and collaboration rather than competition have developed remarkably over the last few years. It began with sharing information, warily at first, but then more confidently as trust grew. Problems and failures were reported as well as successes, and solutions were sought in mutual discussion. ASPESA was

formed and has grown stronger, though not nearly enough to cause complacency. Joint endeavours in servicing students, in developing courses, and in rationalising offerings have become more frequent. Shared research effort is not unusual. Hopefully we are committed to a future that represents a confluence of interest, effort, and resources rather than conflict. For distance education in Australia this is perhaps the most important of the new horizons.

I like the quotation attributed to an American Secretary of State in which, when speaking of a world recovering from international conflict, he said, "There must be one world for all of us or there will be no world for any of us." To me, that seems so appropriate to the distance education scene in Australia. I can only applaud the increasing measure of co-operation that is apparent today, even in these difficult times.

Finally, we can look back with some pride on the achievements of the past, and build on them. We should become more alert to the opportunities of the present, and expand them. But more than this, we need to anticipate the future and to create our own new horizons in distance education.

CONCLUDING SESSION: KEY ISSUES IN EVALUATION IN DISTANCE TEACHING

John Armstrong - Chairman
 Brendan Connors
 Eric Gough
 Stephen Kemmis
 David Sewart

JOHN ARMSTRONG: OVERVIEW OF EVALUATION IN DISTANCE TEACHING

It was very difficult to know just exactly how to structure a final session such as this. In the end, the panel of speakers decided to attempt to summarise the important issues that have emerged during the Workshop and to identify major problems that have been raised. So each of the four speakers will spend about ten minutes summing up and identifying crucial issues in four major areas. Stephen Kemmis will look at program evaluation; Eric Gough will look at system evaluation; Brendan Connors will look at student evaluation; and David Sewart is going to look at the evaluation of mediating (or support) services between the institution and the distance student.

I thought it might help us if I attempted to set a context for this session. It seemed to me that some of the contextual factors that have emerged since Dr. Allen gave the opening address are the various political issues impinging on distance education. In the Australian context, at least, there are financial stringencies as a result of "flat" funding. There are pressures for accountability. There are pressures for rationalisation and co-ordination. There are also in-built problems of structural unemployment - structural youth unemployment especially - and inflation.

As the Workshop proceeded, I identified various social issues: the usual considerations of access, mobility (with its implications for transferability or portability of credits), diversity of institutions, and diversity of courses. Eric Gough made a very strong point about equality of opportunity, especially for the handicapped and the isolated. All through the Workshop there have been undertones about the learning society and life-long education, particularly in the context of recurrent education, retraining, and vocational training. As most of the people here are in the university and college sectors, I regretted that the role of T.A.F.E. in that process did not surface more visibly.

Then various institutional issues were raised: the reasons for which institutions have entered the field of distance teaching, both altruistic and selfish; the maintenance of institutional viability (although we run away from that and refuse to admit that that is why some of us are in the game); for others, particularly the non-metropolitan institutions, there is the question of increasing the pool of potential students - or, as we put it at this college, "serving the needs of a vast geographical region", with students who cannot attend the college but who still want to do tertiary studies. Also at the institutional level, there are the questions of the maximisation of the use of resources, the balanced allocation of limited finances, the redeployment of staff, and so on.

Various educational issues have been identified, starting with the quality of courses, and particularly the quality of external courses *vis-à-vis* internal courses. There is the question of maintaining the academic and intellectual integrity of tertiary courses in a mode of teaching that is significantly different, in many ways, from the traditional mode of teaching. There is the problem of devising appropriate instructional methodologies. And finally there is the emerging and huge question of the adaptation of communications technology.

Other issues which surfaced seemed to extend right across the post-secondary education system - if I can use the singular - in Australia. These inter-institutional issues include competition, co-operation, and collaboration among institutions; rationalisation and co-ordination within and between States and institutions; equivalence of standards between internal and external courses, both within and across institutions.

There are problems of needed research, appropriate research methodology, and evaluation in all its aspects. There is the vexed question of eligibility, which was raised in the opening address. Finally at the inter-institutional level, there is the question of shared educational and technological resources.

As I reviewed the Workshop thus far, it seemed to me that we have simply skirted round the edges; while we have looked briefly at evaluation of programs, courses, curricula, and student learning, there is still a multitude of other matters that have to come under, if not the microscope of evaluation, at least the eyeglass of evaluation. For example, we have not looked at the evaluation of course materials and instructional packages; perhaps that is quite properly an institutional concern, but I think that there are also inter-institutional concerns about the validity and effectiveness of instructional materials.

There is even the matter of the evaluation of different models of distance teaching - for example, the University of Queensland model, the University of New England model, the Deakin model, and the R.M.I.T. model - with all the implications of those models for internal organisational arrangements, delivery systems, and the production of instructional materials.

Then there is the matter of the evaluation of course development processes, which Stephen Kemmis focused on. There is the evaluation of resource allocation and utilisation, and the matter of cost-effectiveness.

There is the evaluation of the actual delivery systems and of educational support services. There is the evaluation of the adequacy of interaction between student and teacher, student and student, and student and the institution. There is the evaluation of feedback loops in the instructional process. There is the evaluation of instructional methodology and instructional technology. There is the evaluation of counselling services.

During the Workshop, it came through clearly that we really need to know more about student retention, or student drop-out.

We certainly need to know more about one of the topics that was raised in a paper during the week - the matching of instructional materials and students' learning styles.

There is the question of quality control, and there is the over-arching question, particularly at the college level, of the adequacy of distance teaching in relation to the vocational competence of graduates and the relevance of external courses to the work situations of graduates.

That is a daunting list of issues and questions, and unfortunately we can look at only a few of them in this last session.

STEPHEN KEMMIS: EVALUATION OF PROGRAMS

It has been fairly clear, right from the opening address, that evaluation in distance teaching is a major concern of people attending this Workshop. I want to use a dreadful word that has not really been used a great deal through the conference but which does stand very closely behind a lot of the discussions which have been taking place - accountability.

It is quite clear that exactly how institutional resources are being expended is a matter of increasing interest not only to the Board of Advanced Education in Queensland but to Government instrumentalities around the country. We are accustomed to thinking about our public accountability for our use of public funds. Evaluation provides us with a mechanism for being accountable and for showing people that we are accountable. Bob Stake, at the University of Illinois, has a very simple definition of accountability: the notion of accountability as simply keeping records and making programs open to view.

For some reason - it must be to do with the authoritarian nature of our society - we are always aware of our accountability to other people and less aware of other people's accountability to us. Accountability, in my view, is a two-way process; we may be accountable for our use of public funds, but equally the people who are the providers of those funds are accountable to us for the kinds of constraints that they place on our work. There is accountability for provision as well as for performance in a time of shrinking resources. It is proper for us to be asking such questions as: "Are we actually getting enough resources to do the jobs that are required?" "What are the processes by which the distribution of resources is managed?" "How do we establish a base for asking questions about accountability for provision?"

So the various Higher Education Boards can be asked questions about how they are distributing their funds. But it is not easy to ask those questions.

Now I want to take up a second theme, and that is the relationship between the instructional process and evaluation. During this Workshop, there has been a clear indication that in practice we are already taking account of the relationship between evaluation of students and the learning and development process. These things go together. At the program level, the same thing needs to be thought about and the same thing needs to be happening. That consciousness is already there, and it is my view that I am merely providing a slogan that in some sense captures a spirit that is already evident, namely, the idea of linking evaluation and program development.

The third point which I want to make links the two previous points of program development and accountability. We have here present in this room and in the work of ASPESA a network for exchanging information across and between institutions and programs. We can also look at one another's developmental problems and tasks, and in that way create new models by nearly first-hand experience. We can exchange information and get a stronger grasp of the ways that our own institutions might be adapted and might develop. There are different models about the place, and it is a question of whether to adopt a more refined version of an existing model or to change models. To me that links with accountability, and it also links with the question about provision and performance because we are - and this Workshop demonstrates it - a learning society; we are an organisation that learns, and we belong to institutions that are in the process of learning.

Through experiences such as the ones we have shared this week, we are able to demonstrate that we are in the process of learning about our institutions. We have both an intellectual and a political base which enables us to say we are thinking about the problems of distance education and we do not need to have all of those problems solved for us by third parties or other agencies. That, of course, is a permanent role for this society and a permanent role for us all in our own institutions.

So the three points that I have tried to make with respect to program evaluation are these notions of accountability and its implications for both provision and performance; the linking of development and evaluation; and the possibility of this network providing a basis for demonstrating and continuing the process of program evaluation in this forum.

ERIC GOUGH: SYSTEM EVALUATION

In my bag I happen to have a very brief paper that I wrote for the Victorian Post-Secondary Education Commission. They did not actually ask for it, but I thought that somebody ought to tell them something about distance education and systems and system evaluation. Now I do not pretend that it is a very complete piece of work, but it does illustrate the sorts of issues that I think we ought to be talking about.

One of the first points I make in that paper is that we have a dramatic increase in the number of students and the number of institutions offering external studies. This is fine because it opens up opportunities for people who previously might have been unable to have a tertiary education. But if the quality of the educational experience provided is inferior and unsatisfactory, then the apparent extension of educational opportunity is more illusory than real. So the question of quality, it seems to me, is a key factor.

The next point I make is that, if distance education is to be effective, it needs to be recognised as a valid educational mode that requires the following:

- . a sound philosophical basis;
- . an appropriate organisational structure;
- . adequate resource allocation;
- . the use of specialised educational techniques in designing learning experiences, writing self-instructional materials, developing appropriate teaching strategies, and providing adequate student access to learning resources;
- . production processes that allow learning materials to be published in pedagogically sound and attractive format using audio, video, and print as appropriate;
- . an efficient course delivery system in its widest sense, including the development of an effective support system to meet the needs of students at a distance both before enrolment and as enrolled students;
- . programs for staff training and development; and, finally,
- . evaluation and monitoring procedures to improve the system.

In my paper, I then go on to a recipe for rationalisation; to avoid being lynched, I am not going to communicate that to you. Instead I am going to address some of the questions that one ought to think about in relation to evaluating the system.

The philosophical basis: How does the institution perceive and articulate its role in distance education in terms of which students it admits, what those students are to be taught, how they are to be taught, by whom they are to be taught? To what extent does the institution address the problems of the really isolated student and make its courses accessible to that student as opposed to arrangements that permit the institution to increase its enrolments by providing for easily accessible sub-groups? Does the institution intend to provide an adequate range of courses, including those more difficult to teach at a distance, or is it only offering courses that can be presented cheaply and easily? Does the institution have a commitment to distance education as such? Or are its interests confined mainly to its own operations and its own well-being?

Resource allocation: How much does the institution invest in its distance education system? How much in absolute terms and how much as a relative proportion of the budget? What priority does it accord its distance education system in terms of money, staff, equipment, and space? How does the institution actually decide the allocations, and what implications does this have for the system?

Organisational structure: In what ways has the institution taken account of the complexity of a distance education system and what kind of structure has it developed to give expression to the functions of the system? How well articulated is that structure

with the rest of the institution? How effectively does it express the philosophy of the institution in relation to distance teaching? Is there structural provision for staff training and development? (Distance education is new to many staff, both teaching and non-teaching. It requires new ways of preparing and producing materials, delivering courses, and providing support services for students. Few staff are experienced or trained, and if the system is to develop, there needs to be systematic and continuing provision for staff training and development.)

Development of learning materials: What provisions are made for the design and development of new courses in terms of lead-time, staff allocation, staff loads, budgetary provision? Is it a process which staff have to undertake as an extra, or is proper allowance made in terms of the time and effort required? Are staff given recognition for what they do? In what ways? (For example, is it a criterion for promotion?) Is provision made for specialist input in subject areas where sufficient expertise does not exist on staff? Is there provision for instructional designers, editors, graphics designers?

Production of learning materials: Are materials produced in a format which facilitates student usage and which is appropriate to the subject or discipline and to the level of the course? What are the arrangements for updating the material? Are audio and visual materials used? How? To what extent and for what purposes?

Delivery system: Has an efficient system been devised for mailing materials, processing assignments, dealing with students' enquiries and complaints, arranging tutorials in schools, recording student transactions, updating files. Have teaching strategies consistent with the use of self-instructional materials been developed? (These are sometimes as much a matter of administration as they are of teaching.) Are there adequate support services available to the student? Is there provision for contact with academic staff and with other students, counselling, career advice, and other specialist services? Is student access to learning resources other than the distributed learning materials sufficient? What about the library, book-shop, laboratory, computer?

Evaluation and monitoring: What kind of formal program for evaluation of all aspects of the system does the institution have? How quickly can it respond to changes that are shown to be necessary? To what extent does the system provide for independent evaluators to participate in its reviews? How defensive is it when problems are discovered?

So you see, it is a system. It has many parts. The questions I have posed are really just illustrations of the sorts of questions that could be asked; there are many more. The important thing is that the system should build into itself some provision, some capacity, some mechanism for review and evaluation.

BRENDAN CONNORS: STUDENT EVALUATION

I must confess that I too have been thinking about accountability and cost effectiveness and other things like that which I would not want to bother the student with. It seems to me that you may go into details of your costs and examine the kinds of outcomes that result from them. You can keep your records and make sure that they are as open as Bob Stake would desire them to be. But there is a kind of very rough and ready evaluation, very often performed by people who would not dream of looking at the records or going into any kinds of details about the costs; nevertheless they do evaluate your institution. We sometimes call this "credibility". It is very closely associated with student evaluation. The paper on practical project evaluation brought up time and time again the way in which all the possible objections to evaluating someone's performance at a distance of some hundreds of miles had been carefully

thought about beforehand and neatly blocked off. It reminded me of my own University when it was first started. We decided that above all we had to have a final examination under properly controlled conditions whether we believed in it or not. Many of us did not believe in it, but we realised that, without a final examination, nobody would have believed that this was a proper university in which properly boring things were done and examined later as in the rest of the British universities. So we agreed, and still agree, to have these final examinations, which are traumatic sometimes and expensive to run, but they are our guarantee of credibility.

If I can give you a little case study of horrendous difficulty based on problems of credibility: a South American university was sold a sort of course design system by a university in the United States. In this system, curriculum experts decided on the curriculum and passed it on to the educational technologists. Then at the third stage along the line, and only then, the subject experts, aye, the ordinary academics, came in to design courses which had already been pretty well defined for them. When they had done this, they handed it on to evaluation experts, who were supposed to devise the tests. And the U.S. university gave assurances that these evaluation experts were such wizards with objective-type tests and multi-choice questions that the whole evaluation of this university's courses - vocational courses to degree level - could be done by objective tests. Well, of course, when we heard this, we were very upset, and we said, "This is impossible, you can't do it; even we couldn't do it. And furthermore, it doesn't matter if you can do it because nobody will believe you can do it, even if you do do it." But they persisted and then ran into enormous political trouble and at the last minute they decided that they would just have to have a final examination. They did, and over 85 percent of the students failed, so they were in even worse trouble then.

That is just an example of what happens unless you think about credibility, which, as I say, is very much associated with evaluating student performance in a way which not only is suitable to the student and promotes his learning but also satisfies the legitimate demands of the wider society.

It seems to me that all of us at this Workshop are in some danger in this particular area. We are in danger because we are innovative, we are non-traditional, we are trying to do something which still does not correspond with most people's idea of how education ought to be conducted.

If we are not careful, we are also in danger from something which I dislike raising, but I have to say it, from competition. If any kind of situation arises where an attempt is made to lessen the impact of evaluation on the student in one way or another, even for the best reasons, in order to gain some kind of advantage over competitors, I can only see this as being bad for the student, bad for society, and in the end bad for the institution and for all institutions. I am not thinking about Australia now; actually I am thinking about the fierce in-fighting that is going on in some of the institutes of higher education in our country, where colleges of education have been invited to diversify. They know jolly well that there are far fewer teacher training students available now than there were, say, ten years ago - perhaps only 50 percent as many now. So they are all trying to compete with one another for students. I can see the picture gradually emerging where people are saying, maybe not overtly, but saying things almost like, "Well, if it takes you three years to get such-and-such a diploma at this institution, we can do it in two." Or, "We let you do whatever you like, you know, we don't insist on any particular curriculum," and so on. Now there may be good educational reasons for all these things, but it seems to me that if we are not careful, competition will result in a kind of Gresham's Law situation in which the bad money drives out the good, and the bad and wrongly motivated institutional set-ups will adversely affect the good institutions.

Throughout this Workshop, I have not changed my stance very much about the need to be oriented towards the students. Whatever we do, we must have the students in mind. I was interested in the reaction to the case study we looked at: some people saw it as an institutional organisational problem, some people saw it as a distribution problem, and some people saw it as a personal problem - and it was all those. But I myself instantly saw it as a student problem - what about these poor students? This sort of thing is not good for students.

I think that, when it comes to student evaluation, you cannot help being oriented towards the student. I think that we need to have our evaluation integrated with our teaching materials; I think that we should have high-quality materials and high-quality evaluation exercises. I think the only way that we can really get high quality is to keep at it, and one of the most valuable things that can happen to keep up our quality is a forum of this kind in which we meet together to exchange ideas.

DAVID SEWART: EVALUATING MEDIATING SERVICES

I should like to start by looking at the term "evaluating" itself and what we are evaluating. Are we actually talking the same language when we talk about evaluating such things as students or programs or delivery systems, and what do we mean by those words?

I have actually learned a new word in the English language during this Workshop - the word hangi. When I saw the program, I said, "What's a hangi? Shall I go to it or not?" And I really did not know what it was, except that I imagined it was some sort of social occasion. It was explained to me by somebody that food was cooked in the ground and you went and ate it at a sort of a party - but that was not really a very good explanation of what went on last night. After having experienced one for myself now, a hangi means something rather different for me. From now on, it will mean for me the social interaction that took place at that gathering which was not explained in the simple term, and it will mean memories of individuals and what they happened to do, whether they intended to do it or not. So I have a particular view of a hangi which is not shared by any of you because presumably that was your second or third or fourth hangi, and you will have assimilated these into a general idea of what a hangi is.

Since you have taught me a new word, I shall teach most of you another one - *beiunism*. It is a word which is coming into the English language out of our relationship with the Common Market. You will recall that a few years ago the British Government in its infinite wisdom decided to join the European Economic Community; when we did so, we came to terms for the first time with what was happening just across the water in a few other countries. Many of us now, instead of gathering together in educational circles or economic circles in the United Kingdom, actually go across to Strasbourg or other fine places and talk to educationists or economists or whatever they might be in the other countries; it is noticeable when we talk together that *beiunism* invariably occurs. *Beiunism* comes from two German words "bei" and "unse", and it is traditional for German speakers - and I am not saying anything particular about the Germans because the French and English do this as well - to begin a sentence in the Common Market with "Beiunse" Literally, "By us", or "In our country this is how we do it". Similarly, the French use the appropriate phrase and in English we say, "Well, we do such and such a thing."

Beiunism is the ability to listen to other people's points of view without taking anything in at all; because you are so indoctrinated by your own point of view, you are absolutely incapable of understanding what is being said. So when you see this

in your newspapers, you will not have to look it up in your dictionary - it will not be there, anyway.

The point of this is to stress how important it is to ask, "What do we mean?" Although I speak English nearly as well as you do, during this Workshop I have not always been able to understand the terminology which you use. Even the term "external studies" was a difficult one for somebody from the United Kingdom instantly to fix in his mind. Of course I know what it means, but I have connotations of what happens in terms of what we call extra-mural services, which are certainly not distance teaching systems; we use the term "distance teaching", and "external studies" has other possible connotations for me.

During this Workshop, I have noticed that you yourselves, here in Australia, speak different languages. There is a language known as TAFE-ism, and there is a language known as CAE-ism, and then there is the university-ism language. And when you talk about a study centre in TAFE-ism, it is not the same thing as a study centre in university-ism. Maybe there are even dialects of TAFE-ism as well, but I so far have not been able to enquire after the particular difficulties in that area.

So there are problems in evaluating anything because we may be talking about the same things in different languages, or perhaps about different things in the same language.

For example, what do we mean by students - are we talking about students at secondary level? We had a person here who was trying to persuade us from time to time to talk about distance teaching in the secondary education area, and we were not listening because we were interested in the tertiary area; and in the tertiary area some of us were interested in the advanced education sector, some in the TAFE sector, and others in the university sector. So we were taking in what was being said in different ways.

Now let me give you a piece of *beinism* on mediating services. In a relatively simple society, it is very easy for the ordinary individual to talk to authority. In the Stone Age tribe, an individual had the opportunity to say something to an elder and vice versa, but in our complex society it is nowhere near as easy. We have governments which cannot communicate directly with the people, and so they have to communicate through various people whom I will call, for the purpose of this discussion, intermediaries. The whole of our bureaucratic society is based on intermediaries of one sort or other. For example, in the United Kingdom, the Department of Health deals with people through doctors. If you have a health problem, you go to a doctor, not to the Department of Health. In the area of social services, you have social workers, and in the area of education you have teachers.

Teachers of particular subjects such as differential calculus or geography are not just concerned with differential calculus or geography as teachers of it; they are concerned with the students learning differential calculus or geography. In other words, teachers are involved in the whole interactive educational process, not just in the academic content of the courses they teach. Indeed, in most institutions now the teaching is supplemented by other sorts of services such as counselling services and vocational services. In fairly recent times, the role of the teacher has become compartmentalised in our ordinary teaching institutions. So what are we doing about the role of the teacher in distance education? Do we assume that the teaching materials we distribute can actually accommodate all those activities which are carried out by the normal classroom teacher, now supported by vocational guidance experts, counsellors, and heaven knows what? I certainly have not yet seen materials which do so.

Brendan Connors explained in his keynote address that a lot of this can be put into teaching materials if we try hard enough. But are we really trying hard enough? What are we trying to put into the teaching materials? What are we trying to do? Well, it is difficult for us to say because we all have different sorts of students, and we have different ideas of what those students are. We have not evaluated our students yet. We have not really evaluated our programs yet.

How, then, can we evaluate what we are going to put in the middle? How do we evaluate the services that mediate between the institution and the distance student? How do we find out whether those services are adequate or inadequate, except after the event when we find that a lot of students are dropping out? How do we really know if the students would not have dropped out if the mediating services had been better? How do we know which students need mediating services and which do not? How do we ascertain what levels and kinds of mediating services are necessary or desirable?

Perhaps what we need, before we start looking at mediating services, is to know more about the two extremes - the institution and its programs at one extreme and the student at the other. Then, perhaps, we would be in a better position to understand what goes on in the middle.

As I said at the beginning, we have a very serious problem ourselves as distance educators in communicating with one another. We are not really understanding what we are talking about. I think we have to overcome that problem before we can begin to evaluate any of the aspects of distance teaching that we have been talking about in this Workshop.

JOHN ARMSTRONG: SUMMING UP

One of the things that has struck me throughout this Workshop, especially in the discussion and workshop sessions, is that we have all constantly come back to the central topic of distance teaching rather than focusing on evaluation in distance teaching. This certainly suggests to me that we have to do a lot of spade-work yet on the total concept of distance teaching before we are ready to evaluate the parts.

David Sewart made this point when he said that we need to find out a lot more about the two extremes - the institution with its programs and the student - before we are really in a position to examine what goes on in the middle. We have just seen the same problem arise in the discussion on compulsory on-campus residential schools *versus* voluntary residential schools *versus* no on-campus attendance requirements or provisions whatsoever. And the same could be said of off-campus study centres. In other words, before we can evaluate on-campus residential schools or off-campus study centres, we really need to know where such provisions sit within the total concept of distance teaching.

This sort of problem perhaps explains why, after three whole days, we have come to very few conclusions. As yet, the central concept is too ill-defined, too amorphous to allow us to come to conclusions. We are still trying to come to grips with problems of definition and the nature of the institutional animal.

Given those shortcomings, I feel that I cannot give a neat list of the conclusions and solutions that have come out of this Workshop. The best I can do, I think, is to identify a few themes that came through clearly to me personally.

The first theme was concern with the personal needs of students and the necessity of developing methodologies to discover how external students learn most effectively, what the relationship is between the student and the instructional materials that are produced, and why so many external students drop out of courses. In his opening address, Dr. Allen challenged us to come to grips with the problems of student wastage, of redefinition of roles of teaching and support staff in distance education, of the role of communications technology, and of the individual needs of students. If we have not arrived at solutions to those problems, at least we are more aware of the problems themselves. And, as Ron Store said at the beginning of the Workshop, a clear awareness of a problem is the first step towards solving it.

The second theme that came through to me was the essential difference between the internal student and the external student. Brendan Connors highlighted this difference when he said that what the external student lacks is interaction with teachers and other students - in other words, an institutional and personal support system. Whether such a support system can be supplied through the instructional packages that are produced, whether they can be provided by means of residential schools or local study centres, or whether there is a need for a more elaborate system of mediating services remain unresolved questions.

The third theme was that of the social negotiation of meaning in the context of distance teaching. I saw in Brendan Connors' identification of the lack of support systems for external students this problem of the lack of opportunity for the social negotiation of knowledge, of meaning, and of institutional reality.

I thought that this theme, the social negotiation of meaning, was also relevant to Stephen Kemmis's paper in which he spoke very strongly against the technologisation of reason - "our willingness to subjugate our human convivial intelligence and capacity for critical thought to technologies of reason". So, when Stephen Kemmis and his colleagues shared with us their concept of symmetrical communication, I perceived this as the social negotiation of meaning at the collegial level.

Perhaps, then, this is what has come out of this Workshop: the identification of problems - of communication, of definition, of drop-out rates, of students' needs, of students' learning styles - and the challenge that distance education poses for us as teachers in producing instructional materials that must replace face-to-face interaction between teacher and student in relation to the negotiation of meaning.

Finally, in the spirit of the topic of evaluation, I now offer you a set of criteria which you can use to evaluate the effectiveness of this Workshop. You will recognise how much it draws on Stephen Kemmis's scholarly paper.

WORKSHOP EVALUATION

RATIONAL CRITERIA

- . achievement of objectives (unspecified but assumed)
- . process: congruence between the objectives and participants' performance
- . outcome: identifiable improvements in distance teaching
- . outcome: resultant improvements in evaluation procedures and processes.

INTELLECTUAL CRITERIA

- . the quality of papers
- . intellectual/academic challenge
- . the number of ideas/solutions generated
- . the amount of information transmitted/received/exchanged
- . information sufficiency/overload.

AFFECTIVE CRITERIA

- . conviviality/sense of camaraderie
- . professional fellowship/collegiality
- . symmetrical communication/openness
- . the quality of interaction.

ORGANISATIONAL CRITERIA

- . efficiency of organisation
- . adequacy and utilisation of resources
- . adequacy and availability of support services
- . smoothness of organisation/avoidance of hassles
- . forethought/planning.

SOCIAL CRITERIA

- . quality, number, and enjoyability of social functions
- . sociability/likeability indices
- . quality of social interaction.

ECONOMIC CRITERIA

- . value for money
- . tax deductibility
- . cost-effectiveness
- . institutional/personal return.

QUANTITATIVE CRITERIA

- . number of new ideas
- . number of contacts made
- . number of problems identified
- . number of solutions generated.

IMPRESSIONISTIC

- . Was the Workshop up to your expectations?
- . Did you learn anything?
- . Did we collectively achieve anything?

WORKSHOP PAPERS

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PRACTICAL PROJECT ASSESSMENT PROBLEMS IN DISTANCE TEACHING

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ABSTRACT

The External Studies Department of Newcastle College of Advanced Education was established in 1972 for the purpose of providing practising teachers with the opportunity to upgrade their teaching qualifications from two-year-trained to a three-year Diploma in Teaching. This Department has since expanded in order to cater for Teachers' Examinations and the Bachelor of Education program.

Many subjects have a practical project approach whilst demanding theoretical knowledge valuable in the solution of practical problems. Students receive program outlines, notes, references, and written assignments, and are required to complete laboratory and practical workshop projects. It is these projects that present unique problems for assessment.

Newcastle College of Advanced Education is being developed as a multi-discipline tertiary institution to cater for the demands for higher education in the Newcastle and Hunter Valley Region.

The College's primary emphasis is in the field of teacher education, in which it provides a wide range of courses in a variety of specialist fields at degree, diploma, and graduate diploma levels.

A student enrolment of 2,700 includes 500 within the External Studies Department. Courses available to all students are offered through three schools: the School of Education, which has two divisions, the Division of Primary and Special Education and the Division of Secondary and Further Education; the School of Visual and Performing Arts; and the School of Paramedical and Community Welfare Studies.

An External Studies Department was established in 1972 to assist two-year-trained teachers to complete the Diploma of Teaching. This service has been expanded in order to cater for Teachers' Examinations and the Bachelor of Education program. Figure 1, illustrating enrolments since 1972, identifies a rise to a maximum demand in 1974, followed by a decline as initial upgrading to Diploma of Teaching qualification was satisfied. This trend has been reversed since the introduction of Bachelor of Education courses by external studies to a present total enrolment of 500.

The Bachelor of Education, Industrial Arts by external studies has now been available since 1978, and the first group will complete all requirements for the award in 1980, graduating in May, 1981 (see figure 2). Similar programs are available for teachers of Home Science, Physical Education, and T.A.F.E. who hold the Diploma of Teaching or its equivalent.

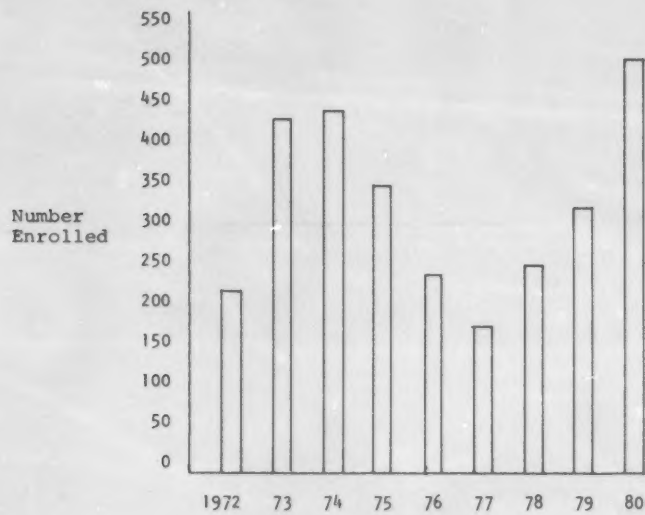
Industrial Arts is a specialist area of teaching which has a strong practical project approach. At Newcastle College of Advanced Education, specialist preparation is based on the concept of design with a demand for a continuous intellectual and imaginative application of design principles, a study of materials, an understanding of technical processes, visual relationships, and ergonomical aspects.

The course is structured to include subjects under the headings of:

- Part 1. Professional Preparation
- Part 2. General Studies
- Part 3. Specialist Preparation (refer to Table 1).

Figure 1

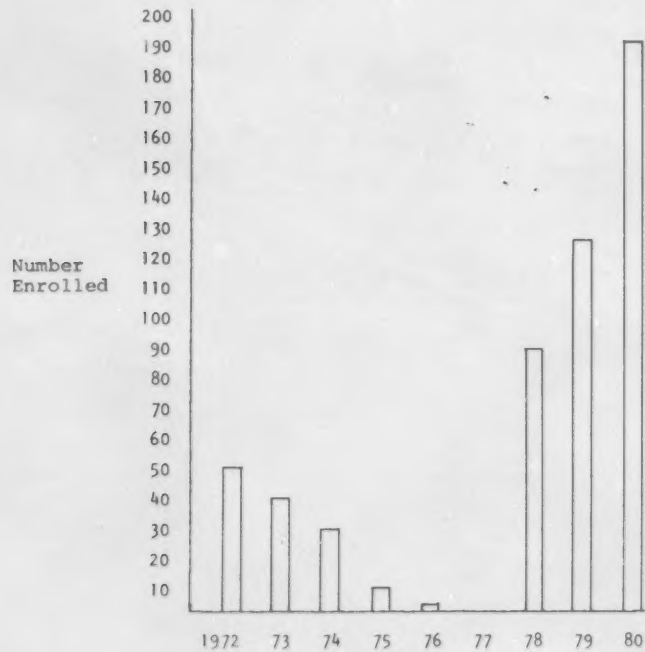
**Student Enrolment (all courses) - External Studies Department,
Newcastle C.A.E., 1972-80.**



Source: Department of External Studies, Newcastle College of Advanced Education.

Figure 2

**Student Enrolment - In-Service Teacher Education Courses,
Newcastle C.A.E., 1972-80.**



Source: Department of External Studies, Newcastle College of Advanced Education.

NEWCASTLE COLLEGE OF ADVANCED EDUCATION

TABLE 1: FOUR-YEAR BACHELOR OF EDUCATION (INDUSTRIAL ARTS) DEGREE*

Course Area	YEAR I		YEAR II		YEAR III		YEAR IV	
<i>Professional Preparation</i>	Education SI	3	Education SII	3	Education SIII	4	Education SIV	4
	Industrial Arts						Industrial Arts	
	Education I	3					Education II	3
<i>General Studies</i>			English G.S.	3	Australian Society G.S.	3		
			An elective unit [#]	3	An elective unit [#]	3	An elective unit [#]	3
<i>Specialist Preparation</i>	Drawing & Design I	4	Drawing & Design II	4	THREE subjects to be selected from:		THREE subjects ** to be selected from:	
	Technology IA	4	Technology IIA	4				
	Technology IB	4	Technology IIB	4	Drawing & Design III	4	Drawing & Design III or IV	4
	Engineering Science I	4			Technology IIIA	4	Technology IIIA or IVA	4
					Technology IIIB	4	Technology IIIB or IVB	4
					Materials Science II	4	Materials Science II or III	4
					Mechanics II	4	Mechanics II or III	4
						12	(** to include at least one level IV subject and either Materials Science III or Mechanics III)	12
	Hours	22	Hours	21	Hours	22	Hours	22
<i>Practical Teaching</i>	4 weeks		4 weeks		4 weeks		4 weeks	

[#] Elective Units: Art, Education, English, Mathematics, Music, Physical Education, Science, Science and Society, Industrial Arts, Social Science.

* Entry Requirement: Higher School Certificate.

Each subject in specialist preparation in the first two years of the course is taken by all Industrial Arts students. These subjects provide an introduction to design and aim at the stimulation of ideas through experimentation. The examination of design concepts involving the use of wood, metal, plastics, ceramics, and electronics components provides an introductory study of materials and their physical properties prior to a more scientific study in the third and fourth years of the course.

Practical skills are of fundamental importance. The emphasis on skill occurs in the first two years of the course. In later years such skills are important but contributing rather than fundamental. Over the four years emphasis swings from the practical aspects of the subject to the establishment of creative thought and the development of an awareness of the importance of creativity in the design process.

ADMISSION REQUIREMENTS

Applicants must already hold appropriate two-year qualifications for entry to the three-year Diploma of Teaching (Industrial Arts), or must hold a three-year Diploma of Teaching (Industrial Arts or an acceptable equivalent) for admission to the Bachelor of Education (Industrial Arts), a four-year full-time degree program.

Students presently enrolled externally hold a variety of qualifications. The majority of students have completed their entry qualification at Newcastle College of Advanced Education. Others have acceptable qualifications awarded in any one of the Australian States or hold an acceptable qualification from an overseas country.

GENERAL STRUCTURE OF COURSES

A "Y" structure has been used in the formulation of the Diploma and Degree courses. Years 1 and 2 are common for both the Degree and Diploma, whilst Year 3 is at either the Diploma level or the Degree level. Year 4 can only be at Degree level.

All third-year subjects available by external studies can be at either diploma or degree level depending upon the level of the final award. All fourth-year subjects are at degree level.

The Diploma of Teaching (Industrial Arts) is offered externally; however, the vast majority of students are enrolled in the Bachelor of Education (Industrial Arts) program and therefore discussion will be concentrated in this area.

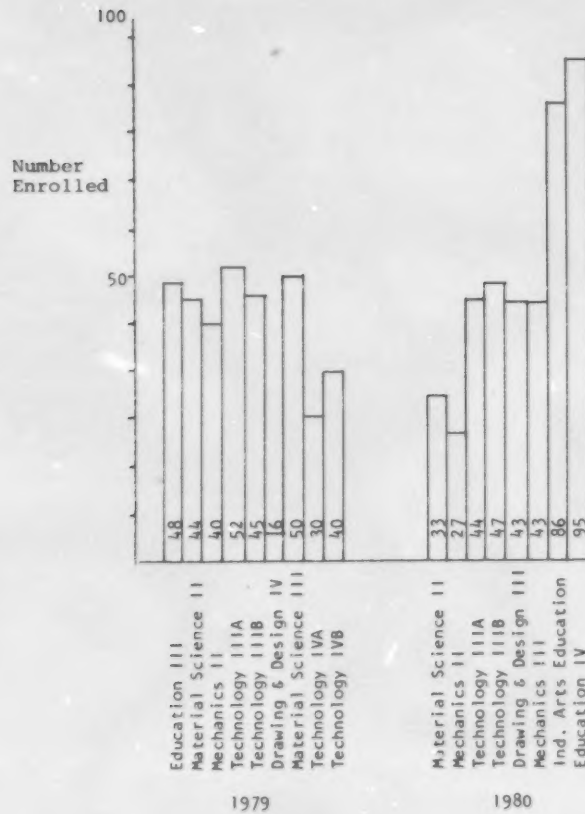
A general outline for the Bachelor of Education (Industrial Arts) is shown in Table 1. Subjects studied in third year are influenced by the fourth-year selection because of pre-requisite requirements. A student must elect either Material Science III or Mechanics III, both of which are fourth-year subjects, and at least one of Technology IVA (Industrial Design), Technology IVB (Wood Technology), or Drawing and Design IV. By reference to figure 3, it is obvious that student choices have created a reasonably even spread in the number attempting each subject.

METHODS OF TEACHING

Teaching methods vary depending upon the needs of theoretical subjects and also of those subjects having a more practical bias. There are the usual techniques to include the provision of subject outlines, texts and reference lists, assignments (both theoretical and practical), prepared notes, photo-copied material, library search information, student resource search, industrial visits, and compulsory schools. There is also the proposed use of video-tape, sound-tapes, slides, and other audio-visual aids.

Figure 3

Numbers Attempting Each Subject, Bachelor of Education (Industrial Arts), Newcastle C.A.E.



Any final combination is dependent upon the aims and objectives of individual subjects, and consequently there is no one common combination. Eventually the method of teaching will influence the method of assessment.

METHODS OF ASSESSMENT

In Education, the level of achievement expected in the degree course is that of a major sequence at a university whilst the standards in academic and general studies units are those of a first- and second-year unit offered in Arts, Science, Applied Science, or Engineering Faculties. Specialist skills in technology are those appropriate at this level for a teacher prepared to teach these skills in a secondary school.

Methods of assessment of student progress are a combination of laboratory and practical workshop assignments, essays, seminars, tests, research projects, field studies, industrial resource search, design folio reports, and final examination. In general, a final grade is determined by the addition of marks for progressive evaluation, major reports, and a final examination. Even though the mark for progressive evaluation varies from subject to subject, it is normally in the range of 60% - 80% of the total marks available.

Written reports are intended to provide evidence of prior planning. In the case of fourth-year, in-depth studies, they should clearly indicate how a student has organised his problem-solving relative to the topic or design brief. A report of this nature will identify a final evaluation and detailed analysis of the program.

The above survey isolates the major assessment procedures without any attempt to relate to specific cases. A more detailed review of selected subjects will follow.

TECHNOLOGY IIIA (Metal)

This is a third-year subject having a high proportion of practical workshop requirements. The practical aspects of this course present some difficulty for external students, for example, in the supply of materials, availability of equipment, and lack of frequent contact with the lecturer. By allowing flexibility of individual work programs when compared with that of the internal student, some compensation is possible.

The aim is to lead students into detailed study of some technological subjects, whilst offering opportunity for skills development, design, problem-solving, and practical organisation at the project level.

In an attempt to overcome the room and equipment problem, external students are expected to go beyond the classroom to local workshops, Technical College, etc., and arrange to carry out appropriate sections of their program. The approach has proven satisfactory and has helped reduce the need for different assessment criteria for external students when compared with those for internal students.

Similarly there is the need for frequent progress reports which include slides/photographs. These will identify any student need for advice and provide means for observation of the various stages of progress, particularly those associated with the major project. Practical projects are either sent or delivered to the College for assessment and in this way provide a more easily comparable result with internal students. Each project must be accompanied by a statement from the student's Principal or Deputy Principal certifying that the work has been done by the student for his course.

External students are required to arrange and undertake one industrial visit related to metal processing and submit a report. Internal students are normally escorted on an arranged industrial visit with a report to follow.

TECHNOLOGY IVA - INDUSTRIAL DESIGN

The aim is to develop an understanding of design for industry. Therefore, in order that the Industrial Design process can be fully investigated, experience is to be gained in the constructive analysis of the design problem, development of the prototype model, and eventual satisfactory achievement of the design product.

A research project forms the basis of assessment in this subject; consequently the achievement of the above prototype provides the component awarded the major proportion of marks. Associated theoretical concepts are treated by study units and written assignments.

The following is a student example of the development of a prototype:

The brief is related to the development of a Motorcycle Sprocket Spanner: "Design a spanner to hold the drive sprocket and drive shaft of a motorcycle steady, whilst loosening or tightening the retaining nut."

The design folio details the design process utilised in the conception, research, prototype manufacture, redesign, and eventual manufacture of the product. The folio is the written record of the student's design methodology, and therefore a high standard is expected. To ensure that a student is treated fairly, a panel marking system is used.

Design research included a survey of sprocket sizes and the existence of any limiting factors on the more popular makes of motorcycles. Findings were recorded in table form in order to clearly identify sprocket thickness and minimum clearance, sprocket to crankcase. Details such as those mentioned above provide evidence in support of the award of appropriate grades.

A design development program described the production of prototype one and prototype two. In this case the second prototype was finally accepted for production after tests provided information on the stress reading and maximum moments. A turning moment of 30.5 Nm was the lowest measured at which the arm bent, a moment which would seldom be encountered under normal workshop conditions. However, to ensure a reasonable factor of safety, a steel of higher tensile strength was chosen for production.

Enquiries were carried out about manufacturing and marketing methods. Die costs were estimated as well as packaging and distribution costs. This research helped the student to conclude that the design is feasible in terms of materials, production methods, marketing, and cost to the consumer.

The folio and design product development had been reviewed during a compulsory school at the College and a rough grading recorded. However, final grading is determined when the product has been packaged and transported to the College at the end of the academic year. This packaging and transportation are part of the final assessment as consumer products need safe distribution methods.

TECHNOLOGY IIIB (Wood)

Technology IIIB is a third-year subject intended for the development of a student's understanding of forest products as a source of raw materials which affect the environment of man. It also aims at stimulating a desire for successful fruition of

planned projects in the laboratory.

Practical projects are to be presented for assessment at College accompanied by a signed declaration similar to that mentioned in Technology IIIA. A photographic record of progress will accompany this declaration. There are occasional difficulties associated with this way of presenting work. Small work is not a problem; however, when projects are too large for transport to the College, because it is either too expensive or too difficult, then either they are accepted for marking on the basis of a photographic record plus a declaration or alternatively arrangements are made for the project to be viewed by a representative of the College. In all cases, assessment is viewed in relation to its position within the total group.

Problems can occur because of the large number of students and the required scope for choice. Eventual success of the program is dependent upon student co-operation, the use of school laboratories, and the development of written progress reports.

TECHNOLOGY IVB (Wood Technology)

Subject objectives include a desire to consider the extent to which man can utilise and control the availability of natural resources to stimulate a critical approach to the problems created by use of forest ecosystems; to consider the special demands placed on forest products laboratories; and to provide opportunities for the study of wood growth, structure, and its derivatives from the biological, chemical, and physical standpoints.

Assignments relate to wood structure and properties using laboratory testing and field investigations. In preparation for assignments, students are advised that background laboratory work becomes the responsibility of the external student. School laboratories are seen as being adequate for the initial practical work whilst advanced practical work will use sophisticated equipment at a compulsory school held at the College. The use of a laboratory assignment book for advanced work is not favoured as students would endeavour to work without supervision and thereby be denied regular lecturer guidance.

Assessment for this subject is by an accumulation of marks to include a research project (40%), two assignments of a general nature (20%), a report dealing with the preparation of laboratory samples (20%), and a final examination (20%).

Obviously the research project is the major work for the subject, and therefore a high standard is expected. One such project is as follows:

"To develop a means by which solid timber can be bent satisfactorily by school students."

and

"To conduct a series of tests on selected timber species to determine their 'modules of bend'."

The project report considered the advantages and disadvantages of bending solid timber, preparation for bending, recognition of stresses produced during bending, bending procedures, drying, and conditioning after bending. This was followed by details of the design problem and accurate drawings of the accepted solution. In addition, ten timbers were accurately identified and subjected to the required 'modules of bend' test; the results of these tests noted radius of bend, whether successful or not, and type and extent of failure. As a result, timbers were grouped as excellent, very good, fair, and poor. Student guidance had been regular and comprehensive, and written answers were given to questions. In addition, regular telephone contact was available.

Assessment was sufficiently comprehensive to enable a comparison with internal students. In all cases sufficient research progress had been evident during attendance at the compulsory school - an important element in assessment as the lecturer could feel confident that his final assessment was accurate.

MATERIAL SCIENCE III

This course is aimed at extending the student's knowledge of composite materials and non-equilibrium structures; critically examining the possibility of producing materials with specified properties; and reinforcing theoretical knowledge obtained by testing and experimental work carried out in the laboratory.

Because no one textbook adequately covers all topics, students are offered a library service for the supply of additional resource information. For this to work, assignments must be distributed well in advance of the due dates. Another approach to help overcome this problem is for each assignment to have available alternative questions or a selection from a number of topics.

Assessment follows the cumulative pattern previously described. A final grade would include a maximum of 30% for written assignments, 10% for two seminar papers, 20% for practical laboratory projects, and 40% for a final examination. The practical laboratory work includes eight experiments completed whilst in attendance at a residential school but written up and returned for assessment at a later date.

In order to avoid external students' being disadvantaged, the internal program has been adjusted. In this way external and internal program demands are as equal as possible. This adjustment becomes evident when it is realised that in Years 1 and 3 of the four-year course, assignment work for internal students is allocated a total of 50% for practical work and 50% for theory work, whilst in Year 4 external and internal students are allocated 20% and 80% respectively.

The fourth-year practical work is completed at College during the compulsory school and consists of shorter, less time-consuming experiments aimed at the development of a particular concept. Long research-type experiments are avoided. This creates a need for more regular assessment of smaller units, with an obviously more structured and predictable result.

Long-term research has been tried with external students but was not considered sufficiently reliable. For example, students were asked to try an experiment on corrosion by half burying a metal sample in sand and covering with water. The sample remained in this state over a number of months prior to the compulsory school. However, it was found that results could not be accurately compared against the internal student's standard because too many variables were obvious. Such things as differences in sand and water content, variable humidity conditions between coastal regions (like that in which the College is located) and that of the dry inland were sufficient to affect the possible end-result.

In an attempt to reduce error in assessment, the Material Science III staff experimented with a system of standard scores and standard deviations. They were of the opinion that a student who would appear to fail in an assignment by being awarded a low percentage mark might be discouraged sufficiently to consider withdrawing from the subject. When this mark is reduced to a standard score, the student may be granted a pass. Distance teaching can be particularly difficult for the very isolated student, who often is very young and inexperienced.

Standard scores and standard deviation results are shown in Appendix I. If Assignment 1 is considered, then it is obvious that external students have a larger range of standard scores, a lower standard deviation, a higher number in the High Distinction, Distinction, and Credit categories, and a lower number in the Pass and Fail categories. In this particular assignment, it would appear that external students had a slight edge on the internal students. Unfortunately this does not hold for all other assignments. At the same time the "final result" does not appear to be sufficiently at variance to identify any significant difference between the final assessment of external students compared with internal students attempting the same subject.

MECHANICS II (Engineering Mechanics)

This subject aims at developing expertise in the solution of engineering problems based on fundamental assumptions that acceleration is constant and that motion and force systems are confined to one plane.

A suitable textbook is available for theoretical components; however, the practical component (weighted equally) does not have the benefit of an adequate text. Nor do students have access to a standard set of equipment, and therefore the practical component has to be based on a more flexible pattern than for internal students.

Regular two-weekly tutorial exercises of Applied Mechanics problems provide the basis for assessment. Marked assignments, together with sample solutions and a grade distribution chart, are returned to students. This technique enables external students to be continually aware of their progress relative to that of their fellow external students. Major written assignments are processed in the conventional manner.

Students receive an experiment booklet, which is based on the assumption that school Science and Engineering Science Laboratories are available. Experiments assume that satisfactory equipment is available. In addition, degree level students are required to develop an implement suitable for practical demonstration of a mechanics principle to secondary school pupils. All materials and equipment are to be provided by the student.

In the final examination, questions influenced by practical work must be written in general terms in order to cater for variation in practical programs. As opposed to this, questions for internal students can be quite specific. Consequently the program for internal students requires modification in order that both external and internal programs are parallel and equitable. The final examination is common to both.

MECHANICS III (Mechanics of Materials)

Mechanics III includes examples related to automotive kinetics and design and aims to develop expertise in the solution of general engineering problems associated with applied mechanics.

The major problem is the laboratory program, which relies on the use of equipment and facilities not normally available in secondary schools. As a result, it is essential that Mechanics III students attend an on-campus school in order to complete practical requirements similar to those for internal students. Organisation is a problem because the College has only one laboratory for 12 students. However, this is normally overcome by running sessions for groups of 12.

Assessment is by progressive evaluation on the basis of written assignments on specific topics, laboratory work, research project, and final examination.

DRAWING AND DESIGN IV

The approach in this subject is through a tutorial system of regular two-weekly exercises. This ensures that students work progressively. A field-work notebook is required to record observations of engineering techniques. A final examination is a valuable tool for assessment in this subject. At the present time, final assessment includes progressive evaluation of practical work and assignments.

INDUSTRIAL ARTS EDUCATION II

Assessment is based on written assignments on the various topics and laboratory work to be completed during the compulsory school. Students must also pass the final examination.

CONCLUSION

In conclusion, it would appear correct to say that assessment of external students is sufficiently reliable to be acceptable when compared with that for internal students. Although some of the problems are unique to external students, acceptable solutions have been devised.

At the same time, problems include lack of frequent contact with lecturers, supply of material, availability of equipment, need for regular reports, the need for proof of production and ownership of practical projects, availability of adequate texts and also other resource material.

An effort has been made to reduce some of the problems by such techniques as set phone-in times for particular lecturers, the use of school laboratories, panel marking, prototype models submitted to College for assessment, final grades assessed as a combined external/internal group, folio reports incorporating a photographic record, and a statement from the Principal or Deputy Principal at the school where the student is employed certifying the authenticity of the work submitted.

At this stage the College believes that assessment methods are sufficient for the maintenance of acceptable standards whilst recognising the need to seek improved methods in an attempt to gain better results.

STATISTICAL BREAKDOWN FOR MATERIAL SCIENCE (1979)

EXTERNAL POPULATION:

Initial enrolment: 48
 Dropouts: 3 dropouts before submitting any work
 2 after 1 assignment
 2 after 2 assignments
 Final figure: 41

INTERNAL POPULATION:

Initial enrolment: 15 (no alteration to numbers during the year)

Standard Score Cut-Offs Used: High Distinction: above 1.65 (5%)
 Distinction: between +1.65 and +1.03 (15%)
 Credit: between +1.03 and +0.4 (36%)
 Pass: between +0.4 and -1.75 (40%)
 Fail: less than -1.75 (4%)

Comparison of Internal and External Students' Assignment ResultsExternalInternal

ASSIGNMENT 1

High 2.05
 Low -2.07
 Mean 64% Std. Dev. 10%
 HD 9.8% Dist. 9.8%
 Cr. 14.6% Pass 63.4%
 Fail 2.4%

High 1.9
 Low -2.48
 Mean 66% Std. Dev. 12.2%
 HD 6.7% Dist. 0
 Cr. 13.3% Pass 73.3%
 Fail 6.7%

ASSIGNMENT 2

High 1.8
 Low -2.9
 Mean 78% Std. Dev. 9.3%
 HD 2.4% Dist. 7.3%
 Cr. 31.7% Pass 51.2%
 Fail 7.3%

High 2.2
 Low -1.5
 Mean 73.4% Std. Dev. 7.1%
 HD 6.7% Dist. 6.7%
 Cr. 26.7% Pass 60%
 Fail 0

ASSIGNMENT 3

High 2.24
 Low -2.21
 Mean 67.8% Std. Dev. 7.7%
 HD 4.9% Dist. 9.8%
 Cr. 19.5% Pass 61%
 Fail 4.9%

High 1.99
 Low -1.85
 Mean 77.5% Std. Dev. 7.5%
 HD 6.7% Dist. 6.7%
 Cr. 20% Pass 60%
 Fail 6.7%

ASSIGNMENT 4

High +1.9
 Low -2.3
 Mean 73% Std. Dev. 8.9%
 HD 4.8% Dist. 12.2%
 Cr. 12.2% Pass 65.8%
 Fail 4.8%

High 1.94
 Low -1.51
 Mean 76.7% Std. Dev. 6.7%
 HD 6.7% Dist. 6.7%
 Cr. 20% Pass 66.7%
 Fail 0

External

ASSIGNMENT 5

High 2.26
 Low -1.8
 Mean 74.8% Std. Dev. 8.0%
 HD 7.3% Dist. 7.3%
 Cr. 14.6% Pass 68.3%
 Fail 2.4%

ASSIGNMENT 6

High 1.55
 Low -2.13
 Mean 78.5% Std. Dev. 9.4%
 HD 0 Dist. 12.2%
 Cr. 34.2% Pass 46.2%
 Fail 7.3%

SEMINAR PAPERS

High 1.2
 Low -3.7
 Mean 74.1% Std. Dev. 14.2%
 HD 0 Dist. 4.9%
 Cr. 29.3% Pass 58.5%
 Fail 7.3%

PRACTICAL WORK

High 1.67
 Low -3.3
 Mean 77.3% Std. Dev. 10.6%
 HD 2.4% Dist. 7.3%
 Cr. 29.3% Pass 58.5%
 Fail 2.4%

EXAM 1

High 1.94
 Low -2.07
 Mean 61.3% Std. Dev. 10%
 HD 4.8% Dist. 9.8%
 Cr. 19.5% Pass 61%
 Fail 4.8%

EXAM 2

High 1.96
 Low -2.7
 Mean 55% Std. Dev. 9.8%
 HD 2.4% Dist. 14.6%
 Cr. 22% Pass 56%
 Fail 4.9%

Internal

High 2.05
 Low -1.54
 Mean 77.9% Std. Dev. 5.4%
 HD 6.7% Dist. 6.7%
 Cr. 11.7% Pass 60%
 Fail 0

High 2.6
 Low -1.54
 Mean 79.7% Std. Dev. 5.2%
 HD 6.7% Dist. 0
 Cr. 20% Pass 73.3%
 Fail 0

High 1.9
 Low -1.65
 Mean 73.2% Std. Dev. 6.2%
 HD 6.7% Dist. 13.3%
 Cr. 20% Pass 60%
 Fail 0

High 1.68
 Low -2.18
 Mean 73% Std. Dev. 11.9%
 HD 6.7% Dist. 0
 Cr. 26.7% Pass 53.3%
 Fail 13.3%

High 1.96
 Low -1.50
 Mean 66.4% Std. Dev. 6.9%
 HD 6.7% Dist. 6.7%
 Cr. 26.7% Pass 60%
 Fail 0

High 1.35
 Low -1.95
 Mean 59.8% Std. Dev. 4.3%
 HD 0 Dist. 26.7%
 Cr. 13.3% Pass 53.3%
 Fail 6.7%

External

FINAL RESULTS

High 2.3
 Low -2.2
 Mean 67.8% Std. Dev. 6.4%
 HD 7.3% Dist. 4.9%
 Cr. 22% Pass 63.4%
 Fail 2.4%

Internal

High 2.4
 Low -1.45
 Mean 69.7% Std. Dev. 4.9%
 HD 6.7% Dist. 0
 Cr. 33.3% Pass 60%
 Fail 0

OVERALL RESULTS WITH SCORES COMBINED FOR ONE DISTRIBUTION

Population 56
 High 2.38
 Low -2.4
 Mean 68.3% Std. Dev. 5.95%
 HD (4) 7.1%
 D (3) 5.4%
 C (13) 23.2%
 P (34) 60.7%
 F (2) 3.6%

EVALUATION OF KNOWLEDGE, ATTITUDES, AND SKILLS IN DISTANCE TEACHING:

A DISCUSSION PAPER

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Before engaging in substantive discussion of the topic, there are a few preliminary remarks that we would like to make. Firstly, because of our concern with the use of distance teaching in in-service teacher education programs, our paper is oriented to this particular area. However, even though we recognise that there is some considerable force in the view that teaching methodology and particularly evaluation must be related to the distinctive body of knowledge which is being taught, we believe that the analysis we provide has significant application to other areas of teaching. Secondly, we acknowledge in our sub-title that this is a discussion paper; by this we intend to indicate that because of the dearth of clear empirical studies in the area of evaluation of knowledge, skills, and attitudes in distance teaching, we can at best outline a conceptual schema and suggest some points for consideration. Having acknowledged these limitations of the paper, we would like to clarify other matters of a more or less introductory nature.

First to definitions. We accept an essentially commonsense set of definitions of the three key terms - knowledge, skills, and attitude. We follow the broad distinction that Ryle (1948) makes between "knowing that" (propositional knowledge) and "knowing how" (skill knowledge) as sufficiently clear for our purposes. However, we do recognise that the kinds of skills which may form a necessary part of many programs of study are not the relatively simple psychomotor skills that Ryle, and others who follow him, tend to use as instances of "knowing how". For example, it is clear that there is great complexity in skills such as classroom management or face-to-face counselling and that the exercise of these skills involves considerable "knowledge that" as well as "knowledge how". In using the term "attitude", we would emphasise the points made by Downie, Loudfoot, and Tefler (1974, pp. 135-6). They point out that any clear analysis of the concept of attitude must involve three elements: there must be a person who holds an attitude; there must be an object of the attitude; and there must be a belief about the object of the attitude. For example, if a teacher wishes to instil an attitude of respect for empirical evidence in his students, he assumes not only that he has students, but that there is such an object as empirical evidence, and that the student should hold certain positive beliefs about empirical evidence. Although this is a very simple basis for considering attitudes, it does draw attention to elements that need to be considered in any instructional and evaluative process.

We make the further assumption that distance teaching ought to have as one of its objectives the development of particular skills and attitudes as well as bodies of knowledge. Although we acknowledge that there is a view sometimes expressed which asserts that institutions of education, and especially public ones, have no authority to attempt to teach particular attitudes, we reject this as quite uninformed. In particular we would point out two sets of attitudes which we assume to be essential components of much tertiary education. These are what may be called academic attitudes and professional attitudes. By academic attitudes we mean those sorts of attitudes necessary in the forwarding of academic endeavour such as caring about discovery; a concern for system and order as opposed to randomness and disorder; a resistance to contradictions and inconsistency; and a respect for objectivity. These are the kinds of attitudes that Peters refers to in his somewhat quaint, eighteenth century term, "the rational passions" (Peters, 1973, pp. 74-80). Similarly Mountford

(cited in Beard, 1976, p. 15) sees the role of tertiary education as providing students with a body of positive knowledge and inculcating attitudes of mind which regard the critical assessment of facts and figures as more important than the acquisition of skills and techniques. Secondly, we assume that there is necessarily involved in much tertiary education those sets of attitudes which may be subsumed under the term "professional socialisation". In many vocational subjects such as law, medicine, education, and business studies, certain professional attitudes and values are assumed to be necessary. Therefore, if students do not possess these when they enrol, they will need to be taught. The fact that the professional attitudes which are selected to be taught are not easily determined, and that what is thought desirable may not match reality ought not to be seen as an argument against the logical case which is presented here - that professional attitudes ought to be taught. Even these difficulties may not be as great as is sometimes imagined. For example, Becker and Geer (1973, p. 153) note that medical students typically appear to move from attitudes of idealism to cynicism as they progress through their training and into internship. Indeed they note the common jargon that, in training, medical students pass through parallel developments, from pre-clinical to clinical and from pre-cynical to cynical. Even so, they maintain that a closer examination of the students' attitudes belies this easy verbal jab and that the students tend to maintain their idealistic attitudes but base their behaviour on them in more realistic ways. While it may be the case that attitudes in both these areas are often acquired incidentally, we would suggest that an important aspect of any program of professional study is the conscious attempt to inculcate attitudes and the provision of some means of evaluating the degree to which this attempt is successful.

Watkins (1975, p. 7) claimed that, despite the modern use of educational technology, external teaching and learning systems are, in at least one important aspect, essentially traditional. The area of knowledge to be studied is, in most courses, strictly delineated by the writer/s of the course through the external materials supplied. These materials - notes, guides, whatever - offer a map of a particular area to be explored by the student. Traditionally in most learning processes, the lecturer is the student's guide, orchestrating his attainment of the course objectives.

As an aside, we would observe that Watkins' claim really implies that in designing external courses we should be attempting to do better in regard to teaching skills and attitudes than has been achieved in traditional - that is, internal - courses.

We now present a schema (Figure 1) to allow a more systematic analysis of approach in evaluating the achievement of knowledge, skill, and attitude objectives. This schema is based on Beard (1976) but has been substantially modified in two ways. Firstly, we have divided into two the column headed "Evaluation or Feedback". Secondly, we have added to the list of objectives and made them more precise while maintaining the major headings, Knowledge, Skills, and Attitudes.

Figure 1

OBJECTIVES, METHODS AND EVALUATION IN TERTIARY COURSES

Objectives	Teaching Method or Student Activity	Evaluation or Feedback	
		Internal Courses	External Courses
<u>Knowledge.</u>			
At the end of a tertiary course, a student should:			
. know the basic terminology of the subject	lectures, assigned readings, demonstrations	objective tests, essays, examinations	objective tests, essays, examinations
. know the principles, basic laws of the subject	lectures, readings, practicals, demonstrations	objective tests, essays, examinations, reports	objective tests, essays, examinations, reports
. understand the uses to which the subject is put	lectures, readings, practicals, demonstrations, contact with professionals	objective tests, essays, examinations, reports	objective tests, essays, examinations, reports
. know the professional expectations, codes of behaviour	lectures, readings, demonstrations, contact with professionals	objective tests, essays, reports, examinations	objective tests, essays, reports, examinations
<u>Skills.</u>			
At the end of a tertiary course, a student should be able to:			
. write coherently	write essays and reports, present papers	teacher/peer assessment of essays, reports, papers	teacher/peer assessment of essays, reports, papers
. be verbally articulate	present papers, discussion, seminars	teacher/peer assessment of papers, discussion, vivas	teacher assessment of taped papers and discussions, telephone tutorials and vivas
. make his own independent academic and professional judgments	meet contradictions, alternative theories, views; seminars, discussions	criticism by other students, tutor, lecturer	criticism by tutor, lecturer
. obtain information efficiently	use of library, abstracts, etc.; preparation for essays, projects; open-ended experiments	informative comment on performance; open-book examinations	informative comment on performance; open-book examinations
. think creatively, imaginatively, and in abstract terms	research projects; tackling unsolved problems; use of concepts in arguments, discussion	quality of writing; assessment of method in tackling problems; credit for originality	quality of writing; assessment of method in tackling problems; credit for originality
. co-operate with colleagues and other professionals in future career	joint projects; role playing; group discussion to give in-sight into group interactions	evaluation of student's behaviour in a group by tutors and other students	
. develop adaptability, i.e., be able to cope with changing patterns of knowledge (both general technological advance and new ideas in own subject)	exposure to new ideas (not accepting everything given as "facts")	follow up after graduation	follow up after graduation
. demonstrate professional skills	role play, simulation, practicum	self, peer, professional, and lecturer observation and feedback	self-observation and feedback

(cont.)

Figure 1: OBJECTIVES, METHODS AND EVALUATION IN TERTIARY COURSES (cont.)

Objectives	Teaching Method or Student Activity	Evaluation or Feedback	
		Internal Courses	External Courses
<u>Attitudes.</u>			
At the end of a tertiary education, a student should have the following academic attitudes:			
. enthusiasm for learning	non-assigned reading; extra-curricular meetings (e.g., science clubs)	extent of extra-curricular activity; posing new problems for own investigation	demonstrated student interest through phone calls, written questions, non-assessable activities
. scholarly concern for accuracy	contact with teachers and researchers displaying such accuracy; continuous checking of own results	assign marks for accuracy in examinations, papers, etc.	assign marks for accuracy in examinations, papers, etc.
. respect for objectivity	discussion, seminars, tutorials	self, peer, lecturer observation and feedback	self-observation, lecturer feedback on taped discussion
and the following professional attitudes:			
. respect for clients	role play, simulation, practicum	self, peer, lecturer observation and feedback	self-observation, lecturer feedback on taped activities
. respect for and co-operation with professional peers	role play, simulation, practicum	self, peer, lecturer professional observation and feedback	self-observation, lecturer feedback on taped activities
. respect for and co-operation with professional superiors	role play, simulation, practicum	self, peer, lecturer professional observation and feedback	self-observation, lecturer feedback on taped activities
. respect for lay public in contact with professional activity	role play, simulation, practicum	self, peer, lecturer professional observation and feedback	self-observation, lecturer feedback on taped activities.

(Adapted from Beard, 1976, pp. 40-41)

Some commentary on this figure is appropriate. Although, at first glance, there seems to be substantial scope for evaluation and feedback for external students, a more careful consideration of the material indicates that there are considerable difficulties involved. In broad terms it can be stated that difficulties arise in evaluating the skill development of external students because of the difficulties of providing the appropriate materials and situations. This seems especially so in regard to many professional skills. Having pointed out this fact, we will not explore it further in this paper.

Our major interest is in considering the development and assessment of appropriate attitudes in the context of external courses. The difficulties in evaluating development of attitudes are of a somewhat different kind from those in developing skills. As noted earlier, there are three elements involved in the concept of attitude. Because of this, there is a fundamental difficulty in the teaching of attitudes which does not arise in the teaching of information. Consequently teaching attitudes requires a different approach from teaching knowledge. Factual information is usually absorbed following some kind of presentation; but attitudes are not something external to the student - they are based on emotions and therefore cannot be absorbed from outside. They are predispositions for dealing with information that is presented; they cannot, themselves, be presented by the external lecturer. They are

a kind of personal, internal coding system. Thus a change in attitudes must originate from the student. In this sense, attitudes cannot be taught; it is the teacher's task to devise the situation so that the student will acquire or change them for himself.

To engineer the acquisition of attitudes may involve two stages. The distance teacher may first make the student aware of a need and then provide the means of satisfying it. This process may be thought of as objectionable in the educational field although it is a normal feature of human conversation; but it seems to us to be acceptable provided it is not coupled with deliberately restricted information. It is the restriction of information that is antithetical to education, not the attempt to change the student's attitudes.

Attitudes may also change when they are felt to be inadequate to deal with information presented. For example, if the student has never read any sociology and knows little or nothing about it from other sources, he will develop attitudes towards it which make sense of the new information and these will be based on his existing perspective. For example, this may be an irrelevant prejudice for or against the text author or an irrational respect for the lecturer. The problem for the distance teacher is to be able to deal with these attitudes as they exist. By contrast, there seems to be a common belief that the teacher of internal students, because of his direct face-to-face contact with the students, can identify these problems more easily and take action to develop appropriate attitudes.

We now sketch out a strategy which we believe may be useful in attempting to develop appropriate academic and professional attitudes in external students.

If new information cannot be reconciled with both of two existing attitudes, a person may change one or both. For example, if a student holds favourable attitudes towards the Trade Union Movement and the Labor Party but is told that many people in the Labor Party supported what he believed to be anti-union legislation, his favourable attitudes towards one or both may change. Complete rejection of a previous attitude is unlikely. The student is likely to take up an "in between" position which may be more favourable to either the unions or the Labor Party.

Thus his attitude may develop and become more complex by successive modification. It is this successive modification that we regard as the basis of a potential strategy for attitude change. The degree to which a student's attitudes will change following the input of information will vary according to a number of factors. These will include his initial attitude, his previous education, the order in which the information is given, whether a number of perspectives on an issue are presented and are considered, the credibility of the lecturer, the amount of change advocated, and the personality of the student (Beard, 1976, p. 175). No doubt there are many other factors involved. However, it can be seen that some of these factors are under the control of the lecturer. Therefore, we suggest an approach to developing distance teaching materials which seeks, among other things, to help students develop appropriate academic and professional attitudes. This approach involves the following steps:

- a) An assessment of the academic and professional attitudes that are commonly held among a particular group of students.
- b) Where these attitudes are thought to be inappropriate, a continuing moderate challenge to them through raising alternative points of view and providing factual information which is inconsistent with the attitudes held. It should be noted that up to a certain point the degree of attitude change will increase the greater the change required, but beyond that point, at first little and then no change is obtained (Beard, 1976, p. 175). It is as

if there are limits to a person's credulity and when the limit is reached he will dig his heels in and refuse to yield an inch.

This implies that if a lecturer requires a major change in the attitudes of his external students, he will have to design his course so that attitude changes are promoted in small steps; and since not all his students will change by the same amount, the size of the learning steps will need to be progressively smaller. Cohen reports that the limits of credulity vary with the credibility of the source of information. With respected and credible teachers, the greater the discrepancy between the students' views and those presented, the greater will be the shift in attitudes. With doubtful or less credible lecturers, the degree of resistance increases as the discrepancy increases (Beard, 1976, p. 175).

- c) The provision of opportunities to encourage students to reflect on these alternative views and different information in the light of their own experience.
- d) The provision of opportunities for students to resolve differences among attitudes, to consciously incorporate new sets of attitudes into their academic and professional lives, and to reach some "closure".

Finally, we consider the problems of evaluating attitude change in external students. We accept as legitimate the criticism that external courses often fail to adequately evaluate skill and attitude change. However, we would point out that the claim that is sometimes made that lecturers of internal students can identify skill and attitude change is often based on dubious evidence.

While it is generally agreed that evaluation procedures have a powerful influence over learning, little has been done to integrate the three main sets of objectives - knowledge, skills, and attitudes - that have been suggested by Beard, into the strategies of distance teaching. The arguments about reliability, consistency, and validity are sufficiently known. Perhaps what is needed is to seek answers to the following questions raised by Heywood (1977, p. 216):

- 1. What changes in students in all three areas will be apparent at the end of a course?
- 2. How will the student apply the knowledge from this course?
- 3. What major insights will develop in the students as a result of this course?

One immediate possibility is the use of pre-course and post-course testing. Heywood suggests another which, when used with Beard's suggestions, offers a distinct possibility: the use of multiple objective examining. He explains:

It is a way of encouraging the student to develop the ability to organise, integrate, and relate knowledge, to adopt study habits that will enhance learning throughout his lifetime, and to take responsibility for his own education. It is also designed to assist the student in co-ordinating his outside reading with his course materials and to test his ability to extemporise on problems and propositions....It represents a comprehensive evaluation of the student's total progress. To achieve this goal a variety of assessment procedures is likely to be necessary. Implicit in this definition is the principle that the examining or assessment procedure will have a powerful influence over learning. For this to be possible both the examiner and student need to have a very clear idea about the objectives they wish to achieve in respect of the acquisition of knowledge, the understanding of values, and the development of skills. (Heywood, 1977, p. 216)

Such a process of assisting the student will possibly put pressure back on the course-writer. Even more so, it will take up time traditionally devoted to the conveyance of facts and require that the form of distance teaching be reconsidered. Yet the statement of objectives in terms of knowledge, skills, and attitudes cannot exist independently of the learning experience devised or the method of assessment used. By using Heywood's multiple objective approach to evaluating students in distance teaching, we ensure that attention is paid to the three areas - knowledge, skills, and attitudes - and that the complementarity of these areas is recognised.

Arguments are never as tight as one wishes them to be - criteria of external teaching effectiveness are difficult to specify with precision and this is particularly true where the objectives are concerned with attitudes.

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THE ASSESSMENT OF SKILLS-ORIENTED COURSES IN IN-SERVICE PROGRAMS FOR TEACHERS

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ABSTRACT

Over the past three years many hundreds of teachers have completed the Upgrading (In-Service) Course offered by colleges of advanced education in this State. The purpose of the course is to upgrade two-year-trained primary teachers to Diploma of Teaching status. The majority of teachers undertaking the course complete their studies externally. As the course aims at developing competence in certain instructional skills and techniques, it is of interest to examine how this is achieved through the medium of distance teaching. This topic is discussed in this paper in relation to the Darling Downs Institute of Advanced Education. Course objectives with a "skills orientation" are identified. How these objectives are taught and assessed is examined. Particular attention is given to one instructional module which has as its major aim instruction in specific teaching strategies.

INTRODUCTION

Since its inception in 1977, well over 1500 teachers have completed the Upgrading (In-Service) Course at one or another of the six colleges of advanced education offering the program in this State. The Upgrading (In-Service) Course was instituted to afford two-year-trained teachers the opportunity to upgrade their qualifications to Diploma of Teaching level, that is, to three-year-trained status. The nature of this training is the subject of discussion in this paper.

While course structure may vary from college to college, in the main, Upgrading (In-Service) Courses aim at acquainting teachers with recent innovations, trends, issues, and practices within primary education. Considerable emphasis is given to updating teachers' competencies in various programming, presentation, and assessment skills. As a large number of teachers choose to complete the course through external studies, it is of interest to look at how such competencies are taught and evaluated through the medium of distance teaching.

In this paper the presentation and evaluation of teaching skills in the Upgrading (In-Service) Course offered at the Darling Downs Institute of Advanced Education are examined. The paper will examine the objectives of the course as a whole and specific units within the program. Objectives with a "skills orientation" will be identified and these will be analysed in respect of how they are taught and evaluated. Particular attention will be given to one part of the course in which instruction in teaching skills is a major feature.

COURSE OBJECTIVES

The general objective of the Upgrading (In-Service) Course at the DDIAE is for teachers -

....to develop further their understanding of the teaching-learning process and their professional competencies so that they might make appropriate educational decisions when confronted by the demands of a changing educational system. (School of Education, 1976)

In the submission developed by the School of Education, eight specific objectives were

identified. Teachers completing the course were expected to be able to:

1. identify, in educational innovations, underlying contemporary assumptions about childhood, man, and the aims of education;
2. analyse the nature of individual differences and the implications of these for the teaching-learning process;
3. develop competencies for implementing educational changes in order to cater for individual differences in learners;
4. analyse and evaluate their own teaching competencies in the light of new insights into the teaching-learning process;
5. analyse and evaluate new concepts of the curriculum;
6. develop competency in developing curriculum units;
7. analyse some contemporary issues relating to educational change - accountability, measurement and evaluation of learning;
8. study in depth areas of special interest and/or need.

Objectives 3, 4, and 6 specify the mastery of certain implementation and evaluation procedures that in any terms would be considered a challenge for lecturers (and students) working through external studies.

Objective 3 requires competence in strategies for individualising instruction. This, presumably, would entail competence in such matters as test selection, administration, and interpretation; the formulation of instructional objectives; the selection of suitable media and materials; certain organisational arrangements; and the implementation of appropriate instructional strategies in relation to individual children.

Objective 4 demands competence in procedures for observing, recording, and in some way evaluating teaching skills. This task is to be undertaken using a framework that is based on a knowledge of the state of the art in respect to teaching and learning.

Objective 6 centres around a knowledge of school-based curriculum development. Teachers here would be expected to demonstrate competence in the selection and sequencing of content, the timetabling of sufficient time for teaching and learning, the selection and implementation of appropriate methods of teaching, and the assessment and evaluation of program effectiveness.

Many practical skills are identified in the specific objectives summarised earlier. How these objectives are imparted through specific course units is outlined in Table 1. In this Table unit objectives which accent practical teaching skills are summarised, along with a brief statement of how they are implemented and assessed.

In the compilation of Table 1 all units in the course were examined. This involved the analysis of six core units and seven elective units. In the main, the objectives identified in the unit outlines called for knowledge of certain educational or related concepts and allowed for an introduction or exposure to important and/or recent trends, issues, events, etc. in primary education. The medium of instruction was primarily lecture notes (Study Books) and assigned and related readings. Telephone tutorials were conducted in three units. Compulsory four-day residential schools were held in both the first and the second years of the course. Four examinations were set in the course - two objective and two short-answer.

Table 1: Summary of Skill-Oriented Objectives, Instructional Medium, and Mode of Assessment

Objectives	for Units in Upgrading (In-Service) Course	
	Instructional Medium	Assessment
86102 The Developing Child		
1. Students will be required to demonstrate competence in the basic techniques of child study.	Two Study Books, two textbooks, introductory tape, telephone tutorials, residential school.	Child study of one child of primary school age. Report in form of a folder giving detailed information about the child, including reason for selection, background interviews with parents and teachers, observation records, development assessment, samples of work, and suggested program.
2. Students will be required to demonstrate use of skills gained in Objective 1 as a tool in the analysis of developmental processes for a specific child.		
86103 The Child and Learning Environment		
Module 1: Learning Centre		
1. Students will be required to demonstrate competence in making, setting up, and successfully managing a learning centre.	Folder, in the form of a learning centre about learning centres, two textbooks, exhibitions of learning centres at residential school.	Students required to set up a learning centre in their classroom, to be run for a 4-week period. Folder is submitted including full details of rationale, objectives, and plan for centre; then full explanation of how centre operates, instructions, work cards, examples of children's work, photographs, audiotapes and/or videotapes of the centre in action.
2. Students will be required to evaluate their learning centre.		
Module 3: The Child with Special Needs		
1. Identify (i.e., name) through initial assessment children in their class who are experiencing problems in one or more basic skill areas.	Study Book and textbook, residential school.	Students plan and teach a 25-30 minute Direct Instruction lesson for a small group of low-performing children in their class.
2. Pinpoint from assessment data specific errors in need of remediation (error analysis).		
3. Write long-range behavioral objectives for children identified as having problems.		
4. Write a teaching sequence (task analysis), including short-term objectives for the achievement of long-range objectives.		
5. Select, using the checklist provided, appropriate instructional materials to support instructional activities.		

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Table 1 (cont.)

Objectives	Instructional Medium	Assessment
6. Timetable sufficient instructional time for the achievement of long-range and short-term objectives.		
7. Critically evaluate his or her initial attempts at small-group Direct Instruction using specified techniques for grouping pupils, gaining attention, presenting information, maintaining correct pace, and using specific correction procedures and reinforcement techniques.		
86205 New Concepts of the Curriculum		
1. Develop a minor curriculum program which utilises knowledge and information derived from an analysis of the social context, the psychological factors influencing the school curriculum, and philosophical factors influencing the selection of content.	Two Study Books, two textbooks, five supplementary tapes, telephone tutorials.	Submission of rationale for a 10-hour program, and summary of objectives, content, learning experiences, teaching strategies, resources and materials to be used in the program.
2. Implement and evaluate the program which has been developed.		Also discussion of reasons for selection of media employed in program and their effectiveness.
86206 Accountability and the Assessment of Learning		
1. Develop, use, and evaluate appropriate ways of measuring learning outcomes.	Two Study Books, two textbooks, telephone tutorials.	Assignment continued from Unit 86205; detailed information on performance of program as outlined in worksheets on evaluation.
86209 Parents in the Educative Process		
1. Students will design a program incorporating parental involvement.	Study Book and textbook, residential school.	Design a 10-week program involving parents for at least 2 hours a week at school. Also design a home-based tutorial program for 2-3 parents.
2. Implement the program over an extended period.		
3. Evaluate the effectiveness of the program in terms of its objectives.		Report is submitted including description of program, role of parents, and self-evaluation plus parent evaluation.

The units identified in Table 1 listed objectives calling for competence or mastery of a range of practical skills. Worthy of note are the child study in unit 86102; the development and implementation of a learning centre in unit 86103; the planning and teaching of a small-group Direct Instruction lesson in 86103; the development, implementation, and evaluation of a curriculum unit in 86205 and 86206; and the running of a parent-involvement program in 86209.

In all of these units instruction was provided largely through the medium of notes and textbooks. Detailed assignments were set guiding teachers through the planning stages of the unit's practical task and structuring how the task was to be implemented and evaluated.

Assessment and evaluation of the practical tasks outlined previously focused on the teacher's preparation and plan for implementation, and a report of self-evaluation of the success of the implementation phase. What is not directly evaluated in the present structure of the units is the actual implementation of the child study, lesson, parent conference, etc. - perhaps the most important aspect of the task.

This must be considered a major weakness in the unit and course, for it is on this aspect of the teaching-learning process that students need feedback and it is the phase of student performance that signals to the lecturer whether the student has indeed shown mastery or competence. This problem is by no means unique to the course offered by DDIAE, or to the field of education. It is a problem inherent in distance teaching. It is a problem that needs to be overcome, for to accept it means that we must restrict what is offered externally or we must acknowledge that a degree, diploma, certificate, or whatever taken through external studies is inferior to one completed on an internal basis.

As the course is presently structured, the lecturer can only presume that the task or skill was implemented competently and/or in the way reported by the student. In units or modules within units where the implementation phase is of paramount importance, the need for some way of monitoring and evaluating student behaviour during this phase is crucial. In this regard, the tactics employed in Unit 86103, Module 3: The Child with Special Needs, are worthy of consideration and may have some general application. This module has as its focus the instructional needs of mildly handicapped and low-performing children in regular primary classes. Its goal is to give teachers strategies for teaching such children. As the module has evolved over the years, it has shifted emphasis away from just knowledge of such strategies to practice in their implementation. The module is discussed in the following section.

86103, MODULE 3: THE CHILD WITH SPECIAL NEEDS

Description

Module 3 is about Direct Instruction, a model of teaching that has gained some prominence in recent years. Direct Instruction is most often associated with the name of DISTAR, a commercially-packaged curriculum in Reading, Arithmetic, and Language. The program is characterised by being highly structured and teacher-directed, with what the teacher is to say and do clearly specified in teacher presentation books, sometimes called scripts. The effectiveness of the approach with disadvantaged children and certain categories of handicapped children has been well documented.

In The Child with Special Needs, the principles and techniques of Direct Instruction are taught with the lowest-performing, slow-learning children in regular primary classes in mind. The module does not advocate the use of DISTAR materials but takes the position that the techniques can be employed with whatever content and material the teacher has at his or her disposal.

The effective implementation of Direct Instruction is based on training in the technique. The publishers of DISTAR programs, for example, conduct one-day workshops for teachers wishing to learn the method. In the course of the workshop, teachers are introduced to the materials, are given demonstrations on the use of the materials along with certain presentation skills, are told how to organise the classroom for small-group instruction, and are introduced to ways of placing children in the program and monitoring their progress. The emphasis in the workshop is on demonstration and modelling as methods of instruction. The sessions actively involve the participants, and by the end of the day all participants have had the opportunity to practise essential skills.

In *The Child with Special Needs*, an attempt is made to impart the same knowledge and to teach the same skills as are covered in the workshop in a module which runs for approximately six weeks. Instructional materials include a 74-page manual of Direct Instruction and an accompanying textbook. The manual and textbook describe in the clearest possible way the techniques to be mastered.

Module Assessment

The assignment associated with Module 3 calls for the application of the knowledge and techniques introduced through the manual and the textbook (see Table 2). Teachers are asked to develop an educational plan for the Direct Instruction of a small group of low-performing children in their class. All key concepts of the Direct Instruction planning process (assessment, error analysis, classroom organisation, objective formulation, task analysis, instructional material selection) are emphasised in the assignment. The final step in the assignment is the teaching of the lessons outlined in the plan and the self-evaluation of one of these lessons either through a written report or through the identification of the best five-minute segment of Direct Instruction in a written transcript of the lesson. What is unique about the evaluation of teachers in this instructional module is that the lesson they teach is audio-recorded. The recording, in conjunction with the preparation leading up to the lesson, then becomes the basis for self-evaluation and for lecturer feedback and evaluation.

Feedback

Feedback on performance is critical to the ultimate mastery of practical skills. This is no less the case for teaching skills. Feedback involves the correction of errors in performance and the reinforcement of appropriate behaviours. With feedback, the teacher is given direction about altering his or her behaviour where necessary and maintaining behaviour that meets an acceptable standard.

Feedback in Module 3 involves the teacher's self-evaluation and the lecturer's comments on the lesson. With the audio-recordings and lesson transcripts, teachers have a tangible, permanent, and unequivocal record of their lesson presentation. Given a series of self-evaluation headings or a task (bracket in the lesson transcript the best 5-minute sequence of Direct Instruction), teachers are directed towards an analysis and critical evaluation of their lesson within the framework of the Direct Instruction model. This form of evaluation, while not "perfect", is relatively immediate and will suffice until it is confirmed and/or expanded at a later time by "expert" (that is, lecturer) analysis and comment.

Table 2: 86103, Module 3 Assignment

One of the principal aims of this module is to give students an opportunity to use and evaluate Direct Instruction for low-performing and/or mildly handicapped children in regular pre-school or primary school classes. To this end, the assignment for this part of Unit 86103 will be a practical application of the theory presented in the textbook and the Study Book. Students are asked to plan and teach a small group of children who are experiencing problems in learning. Specifically, the assignment calls for students to use Direct Instruction procedures in the preparation and execution of the lesson or lessons needed to bring these children to mastery on some skill or task, and then to evaluate the "experience".

The following specific directions need to be adhered to carefully:

1. Select 4-8 children from your class who need remedial help on some aspect of the reading or mathematics program. Pre-school teachers may choose some equivalent pre-academic skill.
State clearly how you selected these children out of the thirty or so in your class. If, for example, you used a test (commercial or teacher-made), submit the test along with the responses made by the children and your analysis of the errors the children made. Students are advised to study carefully pages 17-34 of the textbook for guidance in the selection of assessment procedures and in error analysis.
2. Develop a plan for the instruction of these children as a small group. Your plan should be based on a daily contact of between 25 and 30 minutes until the skill or task has been mastered. The skill or task should be specific enough to be taught in 3-5 lessons.
Your plan should include a statement of what it is you would like the children to have accomplished after a period of instruction (that is, your long-range objective, and a brief outline of the lessons you will schedule to achieve this).
3. The skill or task to be taught should be task-analysed into its component sub-skills and sequenced for teaching across one or more lessons.
4. Prepare a detailed lesson plan for one of these lessons. Ideally, this should be the first lesson, the lesson in which you introduce the skill and make your initial efforts to bring the children to an understanding of it.
Your lesson plan should include:
 - (a) time and place of the lesson;
 - (b) details of arrangements for the other children in the class;
 - (c) plan of the seating arrangements for yourself and the children;
 - (d) behavioral objective(s);
 - (e) entry behaviours, that is, what it is the children are expected to know or be able to do prior to the lesson;
 - (f) steps in the lesson;
 - (g) description of materials to be used;
 - (h) plan for blackboard work (where appropriate).
5. Teach and record the lesson. Use the audio-cassette provided. The recording should be of high quality, ensuring that the teacher and pupils can be clearly heard and understood.
6. Write a brief (300 words maximum) evaluation of the lesson commenting, where appropriate, on the seating arrangements, the attention of the pupils, your presentation of information, the pace of the lesson, your correction procedures and use of reinforcement, and any other relevant feature or features. Your evaluation should involve an assessment of how well you implemented these Direct Instruction procedures.

OR

Submit an accurate written transcript of the lesson (use the example in Tables 21-23 of the Study Book as a guide for setting out). Bracket what you consider to be the best 5-minute (continuous) segment of Direct Instruction in the lesson.

Marking

Eight pages of lesson preparation details were submitted for lecturer analysis. The ability of the student to 1) select and administer appropriate assessment procedures, 2) conduct a thorough error analysis, 3) task-analyse content, 4) formulate appropriate long-range and short-term behavioral objectives, and 5) select relevant instructional materials and/or media, can be quite adequately evaluated using the written information submitted by the teacher. Just how well the lesson was taught can be gauged by listening to and analysing the audio-tape.

To analyse almost 200 tapes, a team of six graduate assistants was brought together and prepared for the task. Several training sessions were conducted to give the assistants the necessary expertise to analyse taped lessons and written transcripts. The tapes were analysed for two key Direct Instruction strategies - corrective feedback and lesson pace. Data were also obtained on pupil achievement (correct and incorrect oral responses). As well as recording data on specific techniques, the markers were asked to record comments on other important aspects of Direct Instruction, such as the use of reinforcement.

The data obtained from an analysis of the tapes and the lesson preparation formed the basis of the evaluation of the extent to which teachers achieved the objectives for the module.

Discussion

The experience of assessing and evaluating teachers in the unit The Child with Special Needs confirmed the importance of obtaining some measure of the implementation phase of the assignment. While the correlation between preparation and implementation was substantial, there existed, in a large number of cases, sufficient disparity between these two aspects of the assignment to justify the original concern over how the task was actually presented. Many teachers whose lesson preparation was weak were found to be quite strong in the delivery of the lesson. A more common disparity was the quite adequate preparatory activity contrasting with a lesson full of poorly implemented strategies. In both instances a less than accurate assessment and evaluation would have been made if no recording of the lesson had been required.

The experience also raised doubts about the ability of teachers to evaluate their own teaching. In many instances the teachers' perceptions of how well the lesson went were at odds with the impression one was left with after listening to the tape. As both teacher and marker were looking at verbal presentation, it is unlikely that information available to the teacher but not available to the marker affected the validity of the audio-recording procedure. Indeed, in the implementation of Direct Instruction by internal students in the Institute's Graduate Diploma program for the training of special educators, students found the audio-recording as valuable in providing feedback as video-recordings of their lessons.

Most instructors can expect a number of requests for assignments to be re-marked. These are from students who feel that the lecturer's comments and/or the mark awarded were not a fair indication of the work they submitted. In The Child with Special Needs there were none. This is quite a remarkable state of affairs as one would have thought that teachers of many years' experience (and not a little cynical about the need to upgrade) would have been highly sensitive to criticism of their teaching. Indeed, a "ring-around" by the Regional Liaison Officers provides evidence of considerable student satisfaction with the module. This information suggests both that a very accurate assessment of the teachers was made and that the evaluation based on data obtained from the assignment was valid.

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EVALUATION AND CHANGE IN THE DEAKIN COURSE TEAM CONTEXT

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There is no shortage of literature on the subject of curriculum evaluation in both tertiary and sub-tertiary institutions (see, for example, Dressel, 1976). Many of the models and methods available might conceivably be applied to evaluation of courses designed to be received by students who study at a distance from a university or college. Following Scriven (1967), it is customary to distinguish between summative and formative evaluation, that is, between a final evaluation of the overall product (the curriculum or course) and evaluation used to improve the course while it is still in a fluid stage of its development. In the case of summative evaluation, it is assumed that the evaluation process concludes when a decision is arrived at and the report written and delivered. Formative evaluation implies a cyclical, or rather spiral, process of course making, evaluation, course revision, and so on. While the formative evaluation model seems more relevant to our activities in the area of distance education, it is my contention that formative evaluation models which do not incorporate a model of decision-making and change are equally inappropriate for our enterprise of course development and revision. At the very least a model of formative evaluation needs to consider:

- (1) students;
- (2) course designers;
- (3) the communication between students and the course designers;
- (4) communication between course designers and their institution;
- (5) communication among course designers.

These factors need, moreover, to be considered in the context in which course development and revision occur. This context ranges from the backdrop of economic and political pressures to which we are subject in tertiary institutions down to the structures which are set up in an institution to develop a course - at Deakin University the basic structure is the course team.

Not only is it a mistake to apply a closed-ended or summative model to these problems, but a formative model which does not take them into account may not be very useful either.

In rejecting summative evaluation, the assumption is sometimes made that a move away from an objective outside evaluation to a more subjective internal evaluation overcomes to a large degree the problems of the former. While it is the case that evaluation would seem to be more effective if course designers are involved in the process, I maintain that the objective-subjective distinction does not take us any closer to developing a model of effective evaluation than the summative-formative distinction.

The key, I think, is to be found in the notion of change and in the reasons for resistance to change which frequently pervade institutional and group activities in the form of conservatism, scarce resources, heavy workloads, and stress factors. While it is unfashionable to oppose change or to refuse to accept information which points to the need for change in courses and curricula, a tacit resistance may underlie many verbal statements about the need for course revision and improvement. When

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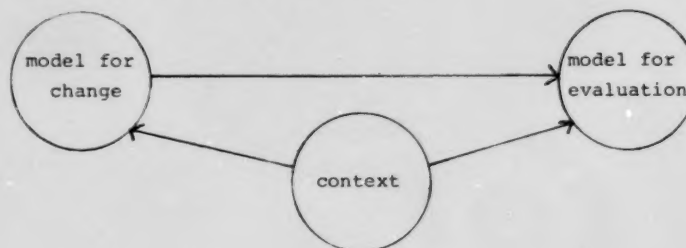
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evaluation is seen in this context, it is clear that emphasis on technological aspects of evaluation does not automatically lead to effective evaluation, nor does a rejection of technology in favour of more impressionistic procedures.

What is needed is a model which incorporates processes for change in the context of a change-resistant situation.

In order to develop such a model, we need to examine some of the ingredients of the change-resistant community to which it will be applied. I will use the Deakin context as a ground-plan, but no doubt there will be a good deal of resemblance to other situations. This is not important because I start from a further premise: that evaluation models are of limited value when generalised *in toto* to other contexts: context is an important part of the evaluation model.



Context variables:

- (1) Small institution.
- (2) Scarcity of resources:
 - . finance;
 - . staff.
- (3) Course revision requirement at four-year intervals.
- (4) Courses produced by course teams.
- (5) Courses not necessarily taught by original course team.
- (6) Course team consists of internal on-going development groups and/or external collectivities which could not be called teams.
- (7) Mixed student population:
 - . on campus, off campus;
 - . young, old;
 - . experienced students, inexperienced students.

Change variables:

Degree of change:

- . no change;
- . minor change;
- . major change.

Type of change:

- . omission/substitution;
- . partial reworking of materials;
- . new course materials;
- . superficial/real.

Who produces change:

- . individual;
- . original group;
- . new group;
- . mixture of original and new groups.

How is change produced:

- . coercion;
- . persuasion;
- . improved communication.

Who/What are affected by change:

- . students - short-term and long-term effects;
- . staff - personal growth,
academic growth,
increased stress;
- . peripheral staff (tutors, etc.);
- . institution - implications for new procedures within the administration of the
the whole program;
- . the materials and their producers, graphics designers, editors, etc.

Having made a profile of the context and change variables which exist in a particular institution, we are now in a position to seek a model of evaluation which is likely to have maximum effectiveness.

The composition of such a model is in itself a creative act: it cannot be taken from the shelf, though the reports of other groups on the effectiveness of their own evaluation experiences may lead to refinement of the model which we develop.

The following case study on course development and course revision is presented to allow Workshop participants the opportunity to apply an evaluation model. In designing the case study, I have drawn on the Deakin context, but the individuals and the situations are largely fictional.

DEVELOPMENTAL PSYCHOLOGY: A CASE STUDY IN COURSE DEVELOPMENT AND REVISION AT DEAKINBackground

Late in February 1977, a course team was formed in the School of Education at Deakin University in order to prepare a second-level, one-semester unit in Developmental Psychology.

This unit was to be offered to a range of students:

- . off-campus - teachers upgrading their qualifications;
- . on-campus - teacher trainees,
- students in the Schools of Humanities, Science, and Social Sciences.

The course was to be offered to both on-campus and off-campus students in Semester 1, 1978; hence there was a one-year lead-time for writing, editing, type-setting, and printing.

The Deakin course team had five members:

- . a Chairman;
- . a Course Assistant;
- . Course Team Members -
 - the Dean,
 - Lecturer A,
 - Lecturer B.

All members of the team had some interest in Developmental Psychology, but only the Dean regarded this as a primary interest. Only three members of the team (Lecturer A, Lecturer B, and the Course Assistant) were in a position to make a written contribution to the course. The Dean had a heavy administrative load, and the Chairman had a heavy on-campus teaching load. A lectureship in Developmental Psychology was to be advertised late in 1977 for 1978 and would be filled then if a suitable applicant could be found.

The course team decided to engage a number of external writers to assist in the preparation of course materials. Five staff members from other Australian universities were contacted and agreed to engage in a joint venture with Deakin staff.

None of the writers (either external or internal) had ever prepared materials in the off-campus mode. All had between three and twelve years' experience in university teaching as lecturers or tutors. In addition, the Course Assistant had worked for three years in an Australian university which had an external studies program. Open University materials were to be used as a model for course preparation.

The Deakin course team met at weekly intervals in order to develop a course outline and to allocate writing responsibilities according to the interests and capabilities of the writers. A course outline was developed and accepted by the external writers at a joint two-day meeting in June, 1977. The course was intended to be the first half of a two-semester offering in the subject. It did not, therefore, attempt to cover all aspects of human development or to cover the total human life-span.

At this meeting the writers discussed their sections and how these would be related to one another. They were supplied with Open University materials as models of writing for off-campus students and went away to produce their drafts.

Final drafts were due to be submitted to the editor late in August and were handed over to the editor late in September. All writers responded to editorial comments, and at this point the external writers were regarded as having fulfilled their contracts with Deakin.

Between September and January, the Deakin course team were engaged in the following activities:

- . preparing two video-tapes;
- . preparing audio-tapes;
- . writing supplementary notes and assignments;
- . interviewing potential part-time off-campus tutors to staff the ten study centres in Victoria;
- . examining applications and enquiries from intending students;
- . preparing a course evaluation questionnaire (see Appendix A);
- . interviewing applicants for the lectureship in Developmental Psychology.

No suitable applicant emerged from interviews for the job. One suitable applicant (who was also an external writer for the course) accepted a job at another university and was unavailable. Course team member B elected to take responsibility for offering the unit in 1978 and was assisted by one full-time tutor on campus. No other course team members participated in the administration or tutoring of the unit.

Seven tutors were selected to staff the ten study centres on a part-time basis. Several of these tutors had full-time jobs in other institutions.

The course was launched with a spirit of optimism. However, it soon became evident that the period of course preparation, though intensive and exhausting, was only a prelude to the difficulties that were encountered in offering the course. Some of the problems which emerged in Semester 1, 1978, are listed below:

1. All the course team members, including Lecturer B who was in charge of the course, were involved in preparation of further courses in Psychology or Education. All except the Course Assistant and the Dean were also involved in teaching on- and/or off-campus students.
2. The external tutors found the course difficult to teach because it contained a good deal of material with which they were not familiar. It was necessary to hold a number of day-long meetings to brief these tutors.
3. A large number of students enrolled in the course (200 on-campus and 250 off-campus).
4. Melbourne students met in a temporary and inadequate study centre because the new accommodation was not ready in time.
5. Students complained to their tutors that the course was too difficult and contained too much reading.
6. Assignment instructions had to be modified at the last minute because the major assignment was taking too long to complete.
7. It was found that many students could not write an essay and needed to be instructed in basic skills.
8. A problem emerged with the B.Ed. on-campus students who were required to be in schools three days each week for teaching practice, leaving two days each week in which to study four units (10-12 hours' study time per unit). These students complained that they could not keep up with their studies and that the Developmental Psychology unit was too difficult.
9. Because of the large number of students and the small number of staff, the turn-around time for assignments was unduly long.

A summary of responses to the course evaluation questionnaire completed by 30 percent of 1978 students is given in Appendix B.

At the end of 1978, the external writer who had been approached in relation to the lectureship in Development Psychology indicated an interest in the position and was

interviewed. He was unavailable before May, 1979 (mid-way through the second offering of the unit), but it was decided to offer the job and wait until he arrived rather than re-advertise.

The course was offered for a second time in Semester 1, 1979, with the following modifications:

1. Section 3 was dropped from the unit.
2. Section 5 was made an optional alternative to Section 9.
3. In addition to the weekly tutorial, lectures were given to on-campus students (one hour per week on each of two Deakin campuses).

These decisions were made by Lecturer B, who was the only member of the course team engaged in teaching the course in 1978. They were inherited by the new lecturer, who arrived in May, 1979, and took up teaching duties immediately. This lecturer had the assistance of four external part-time tutors and two Deakin part-time tutors. He also had the responsibility for developing a second unit of Developmental Psychology to be offered in Semester 2, 1979, to on-campus students initially, making a full year of study in this subject. The Psychology group was also interested in offering a second unit to off-campus students as soon as possible.

The Current Problems

We now jump to May, 1980, and to the problems which confront the not-now-new Developmental Psychology lecturer at this point in time:

1. A large number of students (200 off-campus and 120 on-campus).
2. A heavy administrative load.
3. A heavy lecturing and tutoring load.
4. Student dissatisfaction with the course content and structure, and a continual stream of complaints from students about its difficulty.
5. Few available external tutors.
6. Lack of direct interest in the unit by staff who were on the original course team; these staff have their own courses to contend with.
7. No interest on the part of external writers who have fulfilled their contracts long ago; some of these writers are not willing to write more distance teaching materials.
8. Inadequate evaluation data:
 - . 1978 questionnaire;
 - . 1979 questionnaire has not yet been analysed;
 - . word-of-mouth complaints from students but no student interview data.
9. Pressure from the Psychology group to produce a second unit in Developmental Psychology for off-campus students to improve the Psychology offerings at Deakin.
10. The supply of study guides/readers will be exhausted by mid-1981, at which point the present materials must be reprinted or new, revised materials must be printed.
11. A revision (if it is to take place) of the course must begin within the next two months. The decision must also be made whether to revise the course in the light of a full-year course or not.
12. If no revision occurs, then the course must run for a total of four years without revision (course printings cover a four-year span).
13. There is less money available for course development than there was three years ago. This money is keenly sought after by all course team chairmen in the university.
14. There seems little hope of engaging new staff who might assist in course development and/or revision in the next 18 months.

15. The Course Assistant is so annoyed that his section was dropped from the course in 1979 that he refuses to co-operate in any revision and threatens to take a job elsewhere. If this happens, he will not be replaced.

Discussion Issue

Let us focus on the specific problem of course revision and/or revision with extension to a full-year course. Which of the following courses of action would you choose if you were in the position of the Developmental Psychology lecturer at Deakin? Why would you choose this alternative above the others and what additional consequences do you think might arise from this decision? If none of the alternatives appeal to you, devise a further alternative and outline the implications which follow from this proposed course of action.

Alternatives and Their Implications

Alternative	Implications
1. Resign immediately.	. No suitable jobs in Psychology. . Family commitments in Melbourne. . Tenure is almost due and a new job would mean another period of waiting for tenure. . A record of three jobs in four years may not look good. . There is a piece of equipment at Deakin which is essential for your research and unobtainable elsewhere in Australia.
2. No change: allow the second reprint of the one-semester unit to go ahead and continue to offer the second-semester unit on-campus only.	. Pressure from Psychology group to update the unit. . Pressure from Psychology group to add a second unit to their off-campus offering. . Criticism in the future from outside institutions that our materials are out of date. . Must continue to cope with complaints from students about length and difficulty.
3. Minor change: cut out some parts of existing course before reprinting and continue to offer the second-semester unit on-campus only.	. You may be able to persuade the Course Assistant to relieve your teaching load if you do not drop his section. . You may alienate other Deakin writers if you drop their sections. . You may drop sections by external writers, but this would create an imbalance in the course.
4. Major change: redesign the course to cover a full year; decide which parts to retain and which to exclude or modify, and submit a Stage 2 approval to the University in order to obtain money to redevelop the course.	. A lot more work in the next year on top of a very heavy teaching load. . Writers need to be persuaded to rework their sections where necessary. . The University may not be able to afford to offer your full-year course when it has been developed. . A new course team must be formed or you work alone on the course.

Alternative

5. Sideways manoeuvre: shift responsibility for your course to the group; press for more co-operation from them and more staff immediately.
6. Approach the Centre for Educational Services for money to engage an external consultant to assist you in evaluating the course and preparing a revised course given the constraints of your situation.

Implications

- . This is a long-term manoeuvre and your decision needs to be made within the next 2-3 months.
- . Your colleagues may feel that they are being evaluated and hence become further alienated.
- . The evaluation will inevitably make recommendations about what you should do and about what your colleagues and the institution should do to help you achieve your goal, but you will be left to carry out these recommendations.

Concluding Comments

The aim of this workshop exercise was to present context and change variables which interact with the process of course evaluation leading to course revision. Decisions about the way in which change is to be effected are necessarily a preliminary stage in planning course revision. A further necessary stage is the collection of adequate data on which course revision will be based at an early stage in course delivery. As the example shows, however, evaluative data will not, of itself, produce change.

COURSE EVALUATION FORM

Please answer the questions below and send them to us in the stamped, addressed envelope. Your name need not be added.

1. How long (to the nearest $\frac{1}{4}$ hour) did you take to read Study Guide material and references from the Reader for each of the following:

Section 1	_____	hours
Section 2	_____	hours
Section 3	_____	hours
Section 4	_____	hours
Section 5	_____	hours
Section 6	_____	hours
Section 7	_____	hours
Section 8	_____	hours
Section 9	_____	hours

2. How long did it take to complete the following:

(a) Practical Report	_____	hours
(b) Essay (if relevant)	_____	hours
(c) Major Activity 1	_____	hours
(d) Major Activity 2	_____	hours
(e) Major Activity 3	_____	hours

3. Tick the appropriate boxes to show whether you found:

	Very Difficult	Difficult	About Right	Easy	Very Easy
Section 1	☐	☐	☐	☐	☐
Section 2	☐	☐	☐	☐	☐
Section 3	☐	☐	☐	☐	☐
Section 4	☐	☐	☐	☐	☐
Section 5	☐	☐	☐	☐	☐
Section 6	☐	☐	☐	☐	☐
Section 7	☐	☐	☐	☐	☐
Section 8	☐	☐	☐	☐	☐
Section 9	☐	☐	☐	☐	☐

4. Which section(s) did you find most interesting?
5. Which section(s) did you find least interesting?

RESULTS OF COURSE EVALUATION QUESTIONNAIRE (1978)

1. How long (to the nearest $\frac{1}{2}$ hour) did you take to read Study Guide material and references from the Reader for each of the following:

Section 1	<u>10 hours</u>
Section 2	<u>14 hours</u>
Section 3	<u>42 hours</u>
Section 4	<u>30 hours</u>
Section 5	<u>20 hours</u>
Section 6	<u>30 hours</u>
Section 7	<u>12 hours</u>
Section 8	<u>16 hours</u>
Section 9	<u>13 hours</u>

2. How long did it take to complete the following:

(a) Practical Report	<u>33 hours</u>
(b) Essay (if relevant)	<u>19 hours</u>
(c) Major Activity 1	<u>2 hours</u>
(d) Major Activity 2	<u>3 hours</u>
(e) Major Activity 3	<u>4 hours</u>

3. Tick the appropriate boxes to show whether you found:

	Very Difficult	Difficult	About Right	Easy	Very Easy
Section 1	☐ 1%	☐ 15%	☐ 80%	☐ 2%	☐ 2%
Section 2	☐ 2%	☐ 4%	☐ 88%	☐ 3%	☐ 3%
Section 3	☐ 20%	☐ 32%	☐ 48%	☐ 0%	☐ 0%
Section 4	☐ 10%	☐ 46%	☐ 40%	☐ 4%	☐ 0%
Section 5	☐ 10%	☐ 12%	☐ 48%	☐ 30%	☐ 0%
Section 6	☐ 15%	☐ 30%	☐ 45%	☐ 10%	☐ 0%
Section 7	☐ 2%	☐ 19%	☐ 50%	☐ 29%	☐ 0%
Section 8	☐ 4%	☐ 15%	☐ 50%	☐ 28%	☐ 3%
Section 9	☐ 5%	☐ 15%	☐ 60%	☐ 14%	☐ 6%

4. Which section(s) did you find most interesting?

Section No.	%
1	10%
2	24%
3	2%
4	5%
5	10%
6	9%
7	10%
8	10%
9	15%

5. Which section(s) did you find least interesting?

Section No.	%
1	14%
2	6%
3	15%
4	15%
5	4%
6	6%
7	17%
8	7%
9	16%

SYMMETRICAL COMMUNICATIONS: DEVELOPING
MUTUAL UNDERSTANDING AND CONSENSUS IN COURSE TEAMS

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At the May 1979 Annual Conference of the Higher Education Research and Development Society of Australasia (HERDSA), Dietrich Brandt of the University of Aachen offered a workshop on "symmetrical communications". According to Brandt and his co-workers at Aachen, symmetry in communications is evident in groups characterised by mutual recognition by members of one another as persons appreciated and accepted in their common striving for mutual understanding and consensus.

The thesis of the Aachen group is this: a working group tends to become communicatively incompetent, less satisfying for participants, and less effective as a group capable of producing joint commitment to agreed action when communications in the group are distorted by considerations of status, internal power-politics, or members' failure to respect one another's points of view. Suspension of status-considerations is necessary to achieve a climate where reason prevails and where group decisions are the most defensible ones, given the group's combined resources. Internecine politicking must be suspended to promote the community self-interest of the group and the attainment of consensus and joint commitment, and to avoid the group's coming to serve the self-interests of only a small part of its membership. Recognition and acceptance of members are necessary to achieve representation of all members' perspectives within the group forum and so to engage the disparate interests and perspectives of members and build these into a framework of common understandings and shared perspectives which promote the community self-interest.

Brandt's workshop at the 1979 Annual Conference introduced participants to a technique for promoting symmetrical communication in groups in higher education. Groups are videotaped in the course of their discussions, the tape is replayed, and the "moderator" invites members to participate in the identification and analysis of blockages to symmetrical communication, and the formulation of strategies to achieve greater symmetry in communication.

At Deakin University, much of our course development work takes place in course teams. Like groups in higher education institutions everywhere, these teams have communications problems which are the product of asymmetrical communications. Since so much of our work depends on achieving joint commitment to courses developed as wholes - as curricula, not just aggregates of individual perspectives - it seemed to us to be useful to invite Dietrich Brandt to spend a few days with us helping us to learn techniques for developing symmetrical communications. This he did, using essentially the same approach as in the HERDSA workshop.

In this brief paper, the progress of the group in using the strategies suggested by Brandt is reported. A videotape is also available which depicts the use of the technique by the Deakin group.

A number of interested staff at Deakin attended the Brandt workshop on 1 June 1979. The group consisted of "course assistants" who work on course teams in a variety of roles (from clerical assistance through research assistance and editing to academic development roles), members of the University's Production Unit, and academic staff involved in course development and teaching (from a number of different course teams). One role for the "Symmetrical Communications Working Group" (as it came to be called) was to explore the possibility of giving course assistants a role in the development of symmetrical communications in course teams.

For a variety of reasons, the focus of the group changed. These reasons included the availability of participants' time, the apparent intransigence of some course teams to the development of more symmetrical communications, the level of commitment required to develop the techniques over time, and the emerging interests of the participant group, which settled down at about ten members of whom only three or four were course assistants. The focus remained largely on the development of symmetrical communications in course teams, though it was increasingly perceived as a matter for all course team members, not just course assistants. Course team chairpersons may have a special role in bringing about greater symmetry of communications, as might course assistants, but any member could intervene in the group process to reveal blockages to communication and help to achieve greater symmetry. Some participants in the Working Group also saw the wider applicability of the concept and the techniques for developing it; for this reason, the Working Group began to consider the variety of groups and committees throughout the University where symmetrical communications might fruitfully be developed. Members also considered the development of symmetrical communications in teaching/learning relationships. We have some hopes of longer-term developments in symmetrical communications in our approach to teaching and learning at Deakin. A final possibility was that the Working Group might seek some kind of consultancy role with respect to course teams in the University more generally and use the techniques we had explored in this wider context. This last possibility was rejected on the grounds that seeking this "service" or "technical" role was contradictory to the basic principle of symmetrical communication. We recognised that we could accept such a role if invited to do so, but that we would then be obliged to adopt the strategy of the "hidden compromise" developed by the Aachen team in their relations with higher education teachers: pretending to be "expert" in order to gain access to and credibility with our colleagues, but only serving as "moderators" of the process who helped members of groups to articulate their reactions to communications blockages they already experienced; developing group sensitivity about the signs, symptoms, and consequences of communications blockages; helping the group to formulate strategies for overcoming asymmetry and the blockages to group process caused by asymmetry; and ultimately helping the group to become self-sustaining in the development of symmetrical communication (one sign of which would be dispensing with the services of the outside "moderator").

It was not, and is not, the view of the Working Group that course teams can operate entirely without conflict or misunderstanding. On the contrary, the occurrence of conflict and misunderstanding is natural as groups work towards consensus and mutual understanding.

But conflict and misunderstanding may generate disaffection within a group which alienates members and reduces their commitment to the group project. Should this state of affairs become endemic to the group's process, then the prospect of joint commitment in a common task recedes, and the group project may disintegrate along the lines of self-interest (or sub-group interests) within the group. More commonly groups reach a dynamic equilibrium at some level of entrenched disaffection and internecine rivalry, sometimes remaining more productive, sometimes less. Hierarchy, compulsion, and status may provide the "glue" which holds such groups together, but its consequences may be experienced by group members in degeneration of group commitment, fragmentation of the framework of common understanding, and feelings of dissatisfaction, alienation, or exploitedness among members whose interests are not being served in the working relationship.

"Symmetrical communications" as a concept is a description of an ideal process in which these dysfunctional tendencies are consciously recognised and deliberately countered. It is our project as a Working Group to discover strategies by which we might foster individually satisfying and mutually productive group relations.

Our method in our regular meetings was this:

1. The group met and discussed a topic decided in advance. The topic was usually one of particular concern to one or a few members but relevant (as far as possible) to all our interests. For example, in one session we discussed a proposed evaluation of Deakin University Study Centres. In another, we discussed the possibility of making a film about the operation of course teams at Deakin.
2. These discussions were videotaped by a member of the group. The role of videotaping was shared among members in different sessions and was relatively inexpert: we all shared in the learning process and developed some sense of more useful material for subsequent discussion of group processes and individual responses. We also chose to use the least sophisticated technology: black and white portapack equipment which could be readily replayed in the small seminar rooms where we met, no special lighting, no special microphones outside the one in the camera, and so on. We wanted equipment we could use rather than high-quality production equipment for public performances. (The "production" videotape of our work is unrepresentative in this respect, since we were obliged to meet in a Deakin studio to produce higher-quality material, and we felt the discussion was slightly stilted under the bright lights and in the presence of studio-technicians with their sophisticated equipment.)
3. After the videotaping session, which usually lasted about twenty-five minutes, we replayed the videotape. Whenever some member of the group noticed some blockage to communication, some individual reaction of discomfort, some especially constructive contribution, or some other pattern of interaction which deserved comment, the videotape would be stopped. A relevant section might be replayed. Individuals involved in the incident of interest would be invited to enlarge on their actions or reactions, explain their points of view, speak to the significance of the incident in the group process, or otherwise help to make the group process transparent. Then wider group discussion would begin, with the group attempting to confirm the apparent pattern, find reasons for the blockage, or interpret the group effects of the incident. Where possible and appropriate, strategies for preventing the blockage or overcoming its immediate effects were suggested. Of course it was important to develop and maintain an attitude of trust, good humour, empathy, and constructiveness. We were not a therapy group attempting to analyse each other as individuals; we were attempting, as far as possible, to understand the processes in which we played parts and the events we influenced and were influenced by. It should be remembered that we were an "artificial" group meeting solely for this purpose, so we did not have to overcome the habitual forms and asymmetries which more permanent groups may need to confront. But it should not be thought that the fact of our transience made us so different: the group contained members who have constant working relationships, and we quickly recognised that we were developing stable roles and interests within our group, as well as importing some habitual patterns from other groups of which we are members into the Working Group.
4. Main points emerging from these discussions were "minuted" on overhead transparencies when this was possible - in this way, all participants could see how our learnings (and the minutes) were shaping up. These transparencies were later photocopied and distributed to participants as a record of the meeting.

This process was repeated in five meetings after the original workshop and before we began preparations for "going public" - making the videotape which we hoped might serve as a discussion-starter for other interested groups in Deakin or beyond.

Some of the things that attracted our attention in the regular discussion-sessions included:

- . the development and the effects of "rules" for "turn-taking" in some discussions;
- . the effect of conversational gambits like "That's a good question" or "That's interesting" which could be used by one speaker to patronise or dismiss another while apparently supporting him;
- . the use of the "filibuster" by a speaker to cloud the moment-by-moment interplay of a discussion and gain initiative or dominance;
- . the use of desks by participants as "platforms" to gesture against or retreat behind;
- . the pervasive phenomenon that participants in group discussions simply don't listen to one another or hear one another's points of view as "real" - and often systematically ignore one another while planning privately and waiting for an opportunity to make the next point;
- . the general relation of gesturing to speaking (sometimes small agitated movements indicated that a participant was about to speak or wanted to come into the discussion);
- . the general phenomenon that small muscle movements often indicated tension or anxiety (our videotapes contained a great deal of footage of fingers, hands, and feet moving restlessly).

Our analyses helped us to find patterns in our interaction which may or may not be typical of other groups, but which suggested more global group effects and strategies for overcoming some kinds of problems. For example:

- . members becoming "scapegoats" in moments of group crisis in discussion;
- . the politics of establishing a base for a point of view by appealing to likely supporters and isolating likely opponents;
- . the "neutral chairmanship" role of sorting out problems in communication;
- . the strategy of documenting approaches to agreement in discussion by using an overhead projector, butcher's paper, or a blackboard to keep "visible minutes";
- . the value of defusing contentious issues by seeking agreement on prior points, reflecting on claims made by speakers after conceding their potential merits, or intervening in a debate to ask "What's going on here?";
- . possible roles for course team members in monitoring group interaction and interfering with group processes explicitly to establish mutual comprehension, to encourage members to contribute, to clarify issues, or to support chairpersons in a non-threatening way.

In general, the group enjoyed the opportunity to meet for two or three hours about once a month to reflect on the processes in which we are constantly engaged: the processes of discussion and decision in groups. Even this little self-reflection seemed educative: too often we are involved in these processes as unconscious or intuitive actors, carrying habitual modes of response into new groups, reflecting relatively little, or learning not enough from our experience.

At its last meeting for 1979, the group began doubting whether we had a sufficient commonality of interests or sufficient motivation to continue working together. Before too long, we had reached consensus that we should at least continue into 1980 to make a videotape about the processes we had used, as a stimulus to others. More importantly, perhaps, we have begun to apply what we have learned in other groups of which we are members - as strategies for promoting symmetrical communications. It is, in a sense, an ideological commitment based on distaste for hierarchy, distrust for compulsion, and dissatisfaction with the cynicism and self-interest of small-time group politics. But there are positive reasons for employing the arts of symmetrical communications which transcend what is negative about group or committee work, which has become a tedious and habitual experience of

compromise and which preserves the shreds of self-interest in a climate of contention. At the risk of sounding too much the Pollyana, these positive reasons are that groups can work together to serve common interests, achieve recognition and acceptance of their members as persons, and establish joint commitment to common projects when they do so on the basis of reasoned discussion and free commitment. For perhaps more tasks than we care to admit, such aspirations are achievable.

CRITERIA FOR ASSESSING ASSIGNMENTS

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ABSTRACT

The basic assumptions behind this paper are that students have a right to know the criteria on which their written assignment work is to be assessed, and that they have the right to receive detailed and helpful feedback on their work so that they know to what extent their work measures up to the criteria.

Since work with external (distance) students is beset with special difficulties of communication, there is a special demand on teachers involved with such students to establish criteria for assessing assignments, to explain to students, early in the semester, how these criteria will be applied in marking all assignments in the subject, to work within the criteria, and for each assignment to provide a valid assessment together with feedback according to the criteria.

A few illustrations of suggested strategies from recent literature and from colleagues will be presented. This paper, however, is to be seen as a workshop paper. It is hoped that, as such, it will stimulate discussion and an exchange of ideas.

Roe (1974), discussing assignments at university level, describes them as teaching/learning activities. It is this aspect of assignments and the marking of assignments that is basic to the assumptions behind this paper. In the absence of frequent and direct contact with distance students, the most efficient and effective teaching and learning that can be done seems to relate to the way the lecturer chooses or has students choose assignment topics, establishes criteria early, and, using the assignments, provides formative assessment information to students.

Heywood (1977) decries the tendency for assessment strategies to come very much as an afterthought in curriculum development and in course and subject design:

Despite the fact that it is generally agreed that assessment procedures have a powerful influence over learning, little has been done to integrate them into the curriculum process. (p.1)

Klug (1977, p.10) says that "discussion of assessment policies does tend to suffer from confusion and much talking at cross purposes", while Cockburn and Ross (1977a) even suggest that, although there is considerable comment in the literature about assessment, practice in higher education - and this is what this paper is about - seems to rely heavily on "lore".

It seems that even where substantial and exciting innovations in curriculum course work, including content and teaching/learning strategies, have been developed, there has been a disconcerting lag in relation to innovations in assessment. Accompanying such concerns must be the on-going questions of whether assessment strategies are continuing at least to have acceptable levels of reliability and validity. Propositions such as the following one by Cockburn and Ross (1977, p.34) serve only to underscore the uncertainty about assessment:

Marking essays in higher education is a complex and intuitive business, often described as subject to a hair-raising amount of caprice, but while it is difficult in general to mark essays reliably the evidence is that marking by impression is not always significantly less reliable than marking by other methods.

What does this say about "marking by other methods"? It seems to me that, if Cockburn and Ross are correct, then they have produced a serious indictment of the other methods, whatever they may be. I am confident, however, that reliable other methods can be developed and that an analytical approach through the formulation and use of criteria is worth considering. It is assumed that the criteria will be closely related to the objectives for the course or subject and this will help achieve validity (Heywood, 1977).

Professor Ernest Roe, Director of the Tertiary Education Institute (TEDI) of the University of Queensland, and his staff have recently been studying assessment policies, procedures, and strategies at institutions of higher education in Australia. Results of Roe's most recent studies are to be published this year in Assessment in Higher Education, an International Journal. Roe has found from his survey that, for college courses, internal and external, the most commonly used forms of assessment are assignments (67%), ahead of end-of-course examinations (54%). Roe also reports that 37 percent of college respondents to his survey reported much more or more use of essays/assignments in the last five years. Certainly it has been the most convenient form of assessment for external students.

I want now to suggest definitions of the terms "measurement", "assessment", "evaluation", and "assignment" in a way that at least for this paper will be generally accepted. There is considerable confusion, unfortunately, in the use of these terms, but the following connotations and distinctions seem to be emerging in the literature. Measurement is the act of gathering data, usually samples of a student's performance using appropriate instruments, on the basis of which data, assessment of individual students and also evaluation of learning can be made (B. Bloom, 1970). This leads to a definition of assessment from Rowntree (1977, p.4):

... assessment in education can be thought of as occurring whenever one person, in some kind of interaction, direct or indirect, with another, is conscious of obtaining and interpreting information about the knowledge and understanding, or abilities and attitudes of that other person,

and

If assessment tries to discover what the student is becoming or has accomplished, then evaluation tries to do the same for a course or learning experience or episode of teaching. (pp. 6-7)

(The underlining is mine.)

Miller (1976, p.2) rounds off for us this series of definitions when by assignment he suggests:

a task which is either set by the teacher or chosen by the student, performance in which may provide additional data concerning a student's abilities and achievements.

This definition admits of a wide interpretation. It is compatible with both norm-referenced and criterion-referenced, with idiographic and nomothetic assessment, with process and product, with diagnostic, formative, and summative assessment and evaluation.

Nisbet (1972, p.78) lists five necessary developments in assessment in higher education. He says:

1. We need more, not fewer, assessments.
2. We need a greater variety of forms of assessment.
3. The whole teaching profession needs a more sophisticated understanding of the statistics of marking.
4. Assessment should be more closely linked to defined objectives, that is, to the kind of learning we want to encourage.
5. We should make more use of criterion-referenced assessment, in preference to norm-referenced assessment.

It may be valuable to look at some of Nisbet's ideas in relation to our own context. The first is doubtful in the light of some of the evaluation of assessment loads that I have read about.

One worthwhile strategy that I have found useful is to set one or two short assignments early in the semester, worth together no more than 10-20 percent of the assessment in that subject. This helps the lecturer with diagnostic assessment, it gives students feedback on requirements, both technical and in terms of other criteria. There should be no worry about the "halo" effect if later assignment work is marked reliably.

I have already alluded to the need for variety and the need for innovation in assessment. Some interesting new ideas have already been started. The need for innovation is stressed by, for example, Beard and Bligh (1971). I should like to mention a few innovations that are worth considering for distance education.

- (i) Matching assessment to the students' needs and interests (Miller, 1978).

I am confident that this is not totally new. Many involved with external students are setting assignments in an open enough way to allow for this.

- (ii) Allied to this is the principle of allowing and encouraging student choice of assignment topic and method of presentation.

- (iii) Resubmission of work (redeemability).

Roe (1974) has reported on the value of this approach. Students who are not satisfied with their assignments may be allowed to re-submit after repeating the work in the light of feedback from the marker.

- (iv) Submission of drafts.

Students may be concerned that they do not know how criteria are applied. A one-off attempt at assignment presentation cannot be the only approach, particularly if we stress strongly the learning aspect of assignment work. I appreciate that there are practical difficulties with this approach (time restraints, for example). But do not forget that many full-time and evening students have the opportunity to discuss drafts with lecturers; and this could be seen as one further advantage internal students have over external students.

- (v) Lergessner, looking further ahead, has suggested intermittent assessment:

When, where, how, and by whom assessment is to be administered is decided by the student in consultation with his teacher.

- (vi) Hodgkinson *et al.* (1975, p.2) point out that in the United States, over two hundred institutions are now using, or are seriously considering adopting, some form of competency-based education and competency-based assessment. (See also Glass, 1978). It would be an interesting exercise in itself to examine the general worth of this approach (and this has not been extensively done in Queensland), and, if appropriate, apply it to assignment work for external students.
- (vii) Another innovation also worth consideration is contract learning where, because the learning process is individualised, so too should the assessment be (Hodgkinson *et al.*, 1975, p.3). I have used a simple approach with Graduate Diploma in Teaching (Secondary) students. (See Appendix 1.) These same students made some interesting suggestions about assessment strategies that might be used in their own course. (See Appendix 2.)

The Open University (1978, p.10) reports the use of tutor-marked assignments (TMA's) - project-type assignments which involve experimental or research work and the collection of and analysis of data - and computer-marked assignments (CMA's), but reports also the widespread use of three-hour examinations.

It is not the purpose of this paper to elaborate on Nisbet's third point. It is important, however, to ask how many teachers know about the statistics of marking. It can be a sophisticated business.

Nisbet's fourth and fifth points are very relevant and can be considered together. Beard (1974) reminds us of the importance of establishing objectives and relating assessment requirements and marking schemes to these. Miller (1978, p.14) is one of those writers who recommend that when essays or extended reports (assignments in general) are used as indicators of a student's achievement, the criteria which will influence marking should be predetermined, preferably after consultation with colleagues and/or students. I realise that it is not always possible to have current external students involved in this procedure, but evaluation of a subject, semester by semester, and on-going evaluation generally will include comment on assessment, and this should lead to improvement in terms of greater relevance, helpfulness, and validity. Miller goes on to recommend that students be told the criteria which will be used, and how the presented assignment work measures up to the criteria. It is also desirable, Miller says, for lecturers and tutors to mark samples of work from each other's students. This will help to ensure consistency in marking and adherence to the criteria. Where colleagues and I have done this, agreement has been satisfyingly high, helping to dispel misgivings about lack of reliability suggested in the literature.

A further point must now be considered. I sense we are moving in the direction of less competition in assessment, especially for the kind of students we are concerned with. The justification for this trend has been discussed by, for example, McDonnell *et al.* (1975), West (1975), and Popham (1978). Popham puts it strongly:

Trying to determine the status of examinees according to how well they stack up against one another is decidedly different from trying to get a fix on what it is they can or can't do.

Hodgkinson, Hurst, and Levine (1975) discuss, with examples, a method for incorporating both criteria and standards into a method of assessment. This methodology was developed to increase the reliability of evaluative judgments made in assessment. The examples are well worth studying. A sample is included as Appendix 3.

Students and teachers in our secondary schools will be learning about competency-based assessment and criteria for assessing if recommendations of the Review of Secondary School Studies, or ROSBA as it is called, come into operation. Mr. John Pitman, Executive Officer of the Board of Secondary School Studies, has given me permission to include examples suggested for use in schools (see Appendix 4).

We come now to the question of grading. Use of a classification for grades, even following a set of guidelines, could, but does not always, help. Cockburn and Ross (1977a, p.43) underscore the difficulty of the task with a facetious suggestion:

Perhaps newcomers to certain departments should be given a licence to mark only after achieving not less than B/A (or possibly A/B) on a test which asks them to describe in not more than 500 words the quality indicated by the mark of B^{++?} as compared with two of the following:

B⁺⁺, B⁺⁺⁺, B⁺⁺⁽⁺⁾.

(I know of at least one Co-ordinator of In-Service and Continuing Education who would support such a proposal.) Hewitt and Jacobs (1976) have drawn attention to the potential seriousness of differential grading practices across departments.

Cockburn and Ross (1977b, p.36), however, do suggest more positively a set of guidelines for employing grades. One might suggest that criteria are built into the descriptions for these grades (see Appendix 5).

I have been making a study of guidelines for assessment used in institutions of higher education. It is interesting to see the variety of approaches. I believe that this is as it should be. I believe, however, that there is much hard thinking, discussion, and research needed. There is evidence to suggest (for example, Singleton and Smith, 1978) that there is growing student power in influencing assessment policies and procedures. Students at several universities produce alternative handbooks in which students are given, among other things, information about the perceived quality of assessment strategies and procedures for various subjects. Accountability again!

I have used a general set of criteria for assignments (see Table 1). These are included in subject outlines together with the assessment schedule. At my College, we have a set of guidelines for lecturers with a suggested ten-point literal scale for assignments (A+, A, A-, B+, B, B-, C+, C, C-, N, with some general indication of how bad the N is if felt necessary). Results of assignments and other forms of assessment have to be incorporated into the six-point rating scale (High Distinction, Distinction, Credit, Pass Plus, Pass, Fail) or less frequently and much more easily into the two-point scale of Pass/Fail. Where this general set of criteria is used, a feedback form is completed (see Table 2). This is flexible in design. The middle column can be used in a number of ways. These forms are printed on NCR paper and a copy is retained. Appendix 6 shows another form setting out a specific set of criteria developed by two staff members.

Table 1A GENERAL SET OF CRITERIA FOR ASSESSING ASSIGNMENT

- (i) Understanding the theory and being able to use this theory.
- (ii) This leads to the question of the organisation behind your assignment, which includes such considerations as:
 - (a) a clear statement of the "problem" and how you propose to attack it;
 - (b) the way your "arguments" develop;
 - (c) your ability to "tie ends" together at the end;
 - (d) cohesiveness and consistency, leading to a sense of unity about the work seen as a whole.
- (iii) Ability to relate theory to practice (the applicability of your ideas).
- (iv) Evidence of appreciation of points of view of a number of writers (groups) in the field.
- (v) Originality.
- (vi) Considerations of style.
 - (a) Technically:
 - Spelling
 - Punctuation
 - Grammar
 - Paragraphing
 - Headings (where appropriate)
 - Referencing
 - Bibliography
 - Variety (e.g., in sentence length)
 - Economy
 - Persuasiveness/interest
 - Vocabulary (but free of meaningless jargon)
 - Overall presentation
 - (b) Meaning
 - (c) Keeping to the point/relevance
 - (d) Straightforwardness
 - (e) Maturity.
- (vii) The quality and appropriateness of support materials.

Table 2

ASSESSMENT RESULTS AND FEEDBACK

NAME _____ GROUP _____

ASSESSMENT NUMBER _____ DUE DATE _____ DATE RECEIVED _____

Was extension granted? _____

TEST DATE _____

EXAMINATION DATE _____ WEIGHTING _____ RESULTS Score _____
Grade _____

Overall comment _____

<u>ASSIGNMENT CRITERIA</u>		<u>COMMENTS</u>
Was the question answered as set or the problem attacked as defined?		
1. Understanding and use of the theory.		
2. 2.1 Statement of problem		
2.2 Development of argument		
2.3 Cohesiveness, unity		
2.4 Consistency.		
3. Relating theory and practice.		
4. Use of the literature.		
5. Originality.		
6. Style		
6.1 Technical		
6.2 Meaning		
6.3 Relevance		
6.4 Economy		
6.5 Maturity		
6.6		
6.7		
7. Support materials.		
8. Special Criteria		
8.1		
8.2		
8.3		

By way of further advice, I have, with permission, included as Appendix 7 a checklist for setting an assignment developed by Roe following the research he did on tertiary level assignments and reported in 1974.

We are aware, I think, of the relatively limited amount of study on assessment of course work. We are concerned that methods used in assignments (essays, reports, reviews, short exercises, problems, inventories), especially if marked some time after the student has completed them, tend to have too little value as far as influencing learning at the critical time (Beard and Bligh, 1971, p.65). And assessment should influence learning, should be an integral part of learning.

... assessment debate is awash with hidden assumptions, unstated values, partial truths, confusions of ideas, false distinctions, and irrelevant emphases.

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1980

ASSESSMENT (FOR GRADUATE DIPLOMA IN TEACHING (SECONDARY) STUDENTS)

EDUCATION EDE 402Requirements. Semester 1.To be awarded a 3 (Pass):

- | | |
|---|-----------|
| (a) Do well on short teaching sessions demonstrating teaching skills, and/or in seminars. | 30 |
| (b) Write a brief essay (approximately 1,500 words) on a topic to do with class management or the preparation and conduct of lessons. | 25 |
| (c) Attend sessions, participate in classroom work and in discussion with the lecturer. | 10 |
| | <u>65</u> |

To be awarded a 4 (Credit):

- | | |
|--|-----------|
| (d) Do very well on (a), (b), and (c) above. | 65 |
| (e) Write a paper discussing the use of three teaching strategies. | 15 |
| | <u>80</u> |

To be awarded a 5 (Distinction):

- | | |
|---|------------|
| (f) Do very well on (a), (b), (c), and (e) above | 80 |
| (g) Do very well on an additional assignment, the topic, nature and scope of which should be discussed with the lecturer. | 20 |
| | <u>100</u> |

A High Distinction, if awarded at all, will be for work that is outstanding in all areas.

SUGGESTED ASSESSMENT TECHNIQUES

AN EVALUATION

PG1 Groups
1 October 1979

ART

Contract written by the student, whose aim is to fulfil his own objectives worked by the teacher according to student's success.

Set objective for those whose knowledge is too limited for a suitable exercise to be envisaged.

Theory: 40% Practical: 60%

Testing: Perception
 Knowledge
 Comprehension
 Analysis
 Evaluation
 Appreciation.

Progressive assessment of individual work and the process and involvement of the student in the work.

Group work
Seminars
Critiques
Self-assessment.

Too much emphasis on end-product. Should be more emphasis on process, i.e., keep preliminary drawings, ideas, etc., resource book. Individual research assignments rather than testing at mid or end of semester.

MATHEMATICS

1. Assignments - regular. Criterion-referenced tests.
2. Major assignment - independent research.
3. Semester tests.
4. Evaluative commentary. Some of the group tended to consider maths (senior) a subject where homework and semester tests are the only valid form of assessment. Product vs. Effort.

GEOGRAPHY

1. A.V. tests (interpretation of slides, audio tapes, other materials).
2. Objective tests.
3. Short-answer.
4. Field evaluation.
5. Assignments. Group and individual projects.
6. Essay tests.
7. Skill testing, e.g., maps, slab, rocks, etc.
8. Effective evaluation. 10-20% (dissert. from T. Norman and J. Williamson).
9. Seminar preparation and presentation.
10. Problem solving (games, inductive and deductive reasoning).

Assignment/s and examinations - depending on content taught in semester, e.g., library resources.

HISTORY

Assessment should be divided between assignments and examinations. The ratio of each depends on the particular content of the semester study. Variables such as library resources are important.

- . Disagreement on whether exams should be placed at end of semester or after units.
- . Objective testing is not valid for this subject.
- . Disagreement on weighting assignments/examinations.

PHYSICAL EDUCATION

- (i) Practical skills tests. N.B. Validity.
- (ii) Pen-and-paper tests of skills, strategies, rules, etc. of various sports.
Suggest - multiple choice/short answer/yes, no - true, false. (Board Course.)
- (iii) Board Course research paper. (Theory, e.g., respiration, digestion, circulation, etc.)
- (iv) Chances for certification in various areas as means of assessing interest in area.
- (v) Work book. (Self-assessment in crucial areas.) Pass/Fail basis.

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CRITERIA CHECKLIST FOR U. MASS., BOSTON WRITING AND SPEAKING COMPETENCY I.B.

STATEMENT OF COMPETENCY: You will be able systematically to analyze a subject (i.e., break it down into its component parts and identify these) and draw a valid conclusion based on and limited by your analysis.

CRITERIASTANDARDS

- | | |
|---|---|
| <p>1. General impression of paper or talk:</p> <ul style="list-style-type: none"> a. Clear statement of goal. b. Material consistent with goal. c. Work is not too broad or too narrow. d. A definite point of view is developed. e. The choice of material and medium shows knowledge of audience. f. Clear statement of component parts. g. Clear statement of conclusion. | <ul style="list-style-type: none"> 5. Impeccable, the entire performance forms a coherent whole. The clear statement of the goal generates the material which supports the conclusion. 4. Good, but with some minor flaws in the application of one or two criteria. For example, the work tries to cover too much ground or the work speaks to too many audiences. 3. Generally adequate, but with a major flaw in one or two criteria or many minor flaws. Examples of major flaws might be too much extraneous material or not clear statement of goal or conclusion. 2. Inadequate, difficult to follow presentation. Hard to tell what was the goal or how the conclusion is supposed to follow. Most criteria demonstrated with major flaws. 1. Totally unacceptable, impossible to follow. Cannot tell what the student is analyzing or what his/her conclusion is. |
| ----- | |
| <p>2. Development of the main theme:</p> <ul style="list-style-type: none"> a. Consistency. b. Documentation. c. Knowledge of other cogent views. d. Assumptions and premises are clearly labelled. e. Secondary conclusions (lemmas) are clearly labelled. | <ul style="list-style-type: none"> 5. Impeccable, the main theme is cogent, consistent, and well documented. Different types of statements (facts, assumptions, conclusions) are well marked. 4. Good, but with some minor flaws in the application of one or two criteria. For example, an assumption is mistakenly labelled as a premise, or some premise is not documented. 3. Generally adequate, but with a major flaw in one or two criteria or many minor flaws. A major flaw might be that the conclusion is inconsistent with a major premise or other viewpoints may be badly misrepresented. 2. Inadequate, difficult to see a theme. Much more like a group of unconnected sentences. Most criteria with major flaws. |

1. Totally unacceptable, appears to be random.
-

3. Organizing an integrated structure:
 - a. Opening states the goals.
 - b. Individual parts are integrated.
 - c. Conclusion is consistent with goals.
 - d. Conclusion is consistent with documentation.
 - e. Correct grammar.
 - f. Proper use of vocabulary.
 - g. Good paragraph structure and transitions between paragraphs.
 5. Impeccable, the entire work flows from the initial goal statement to a clear, well-supported conclusion. No grammatical or word usage errors.
 4. Good, but with some minor flaws in the application of one or two criteria. For example, a grammatical or word usage error or the conclusion follows from many premises and one premise is poorly supported.
 3. Generally adequate, but with a major flaw in one or two criteria or many minor flaws. A major flaw might be a word usage mistake which drastically changes meaning or the sequencing of paragraphs might be haphazard.
 2. Inadequate, either the structure is too loose to form a coherent whole or the grammar is unacceptable. Individual sentences need much reworking or the organization of the sentences needs major revision.
 1. Totally unacceptable, both sentences and structuring need major revision.
-

FROM BULLETIN NO. 4, BOARD OF SECONDARY SCHOOL STUDIESEXAMPLE OF SUMMATIVE ASSESSMENT
CRITERIA AT THE WORKPROGRAM LEVEL

STUDENTS ATTAINING VERY HIGH ACHIEVEMENT HAVE:

- . clearly defined and explained terms and recalled factual knowledge taught and acquired.
- . with deep insight into related issues analyzed questions posed in a systematic manner.
- . in complex theoretical and practical situations synthesized knowledge taught and acquired to form logically reasoned and coherent pieces of work.
- . used notes taken from a variety of courses with deep insight into underlying issues of the living environment.
- . with very few errors presented clear maps with suitable and accurate scale, direction, title, and legend.
- . mounted specimens which represent genus and species using mounting and preserving techniques proficiently.

STUDENTS ATTAINING HIGH ACHIEVEMENT HAVE:

- . with minor errors defined and explained terms and recalled factual knowledge taught and acquired.
- . with some insight into issues involved analyzed questions posed in a systematic manner.
- . in theoretical and practical situations synthesized knowledge learned and acquired to form logically reasoned and coherent pieces of work.
- . used notes taken from a variety of sources with insight into underlying issues of living environment.
- . with minor errors presented clear maps with suitable and accurate scale, direction, title, and legend.
- . mounted specimens which represent genus and species with proficient use of mounting or preserving techniques.

STUDENTS ACHIEVING SOUND ACHIEVEMENT HAVE:

- . with variable but acceptable accuracy defined and explained terms and recalled basic factual knowledge taught and acquired.
- . analyzed questions posed in a systematic but routine manner.
- . in practical situations synthesized knowledge taught to form coherent pieces of work.
- . used notes taken in a proficient but routine manner.
- . presented clear maps with variable but acceptable accuracy of scale, direction, title, and legend.
- . mounted specimens with basic use of mounting and preserving techniques.

STUDENTS ATTAINING LIMITED ACHIEVEMENT HAVE:

- . made major errors in defining and explaining terms and recalled only some basic factual knowledge taught.
- . in attempting to analyze questions posed been unable to approach the task in a systematic manner.
- . made incoherent attempts to synthesize knowledge of the living environment.
- . used notes taken inappropriately or in a haphazard manner.
- . presented maps with inaccuracies in scale, direction, title, and legend.
- . mounted specimens that do not represent genus or species with poor preserving or mounting techniques.

STUDENTS OBTAINING VERY LIMITED ACHIEVEMENT HAVE:

- . shown little knowledge of terms and recalled very little of the basic factual knowledge taught.
- . been unable to analyze questions posed.
- . been unable to synthesize knowledge of the living environment.
- . shown little evidence of having taken notes.
- . presented maps that are untidy and with inaccuracies in scale, direction, title, and legend.
- . mounted specimens with poor mounting and preserving techniques that do not represent genus or species.

It is recognised that students' achievements on a range of criteria will not fall neatly into five categories. The above is a guide to teachers. It may be necessary to allocate some students' achievements to levels according to variations of the aggregate of criteria presented above. In these cases judgments should be made in relation to the stated criteria. The Board's Review Panel provisions will accommodate such occurrences as part of the whole certification process.

---oOo---

(I am indebted to Mr. John Pitman, Executive Officer, Board of Secondary School Studies, for permission to reproduce this material.)

CLASSIFICATION OF GRADES SUGGESTED BY COCKBURN AND ROSS (1977)

<u>Grade</u>	<u>Description</u>
A+/A	Excellent critical and conceptual analysis/ comprehensive survey of relevant issues/ well argued/well presented/relevant reading effectively incorporated.
A-/B+/B	Good critical and conceptual analysis/good survey of relevant issues/satisfactory presentation/relevant reading effectively incorporated.
B-/C+/C	Rather more descriptive than critical and conceptual/analysis lacks clarity in parts/ evidence of relevant reading but not always effectively used.
C-/D+	Perfunctory/largely disruptive/disorganised and lacking in detail.
D/D-	Perfunctory/almost entirely descriptive/ narrow in conception/poorly argued.
F	No evidence of understanding/little evidence of a serious attempt.
O	Not presented.

KELVIN GROVE COLLEGE OF ADVANCED EDUCATION

SDE 981

SCHOOL ORGANIZATION AND DEVELOPMENT
ASSIGNMENT EVALUATION SHEET

Student's Name _____

Assignment Number _____

Lecturer/Marker _____

Major Categories	Comments
A. Presentation . Heading, assignment number, name, etc. . Bibliography/References . Expression: spelling, grammar, syntax, succinctness and clarity . Diagrams, tables and other graphic illustration, plus explanations, as appropriate . Organization of ideas - i.e., introduction, logical sequence and links.	
B. Familiarity with study materials . Reference made to readings . Analysis and synthesis of others' ideas . Critical evaluation of others' points of view . Evidence in 'application' of the theory and principles expounded in the study materials . Evidence of having gone beyond the materials supplied.	
C. Understanding of concepts . Ability to go straight to the central point . Ability to probe beyond the superficial and the obvious . Conclusions from investigation demonstrate insights.	
D. Application . Appropriateness of selected activity for application in the exercise . Application with purpose - i.e., to learn about and improve the situation . Evidence of careful investigation, or collection of information . Avoidance of the purely anecdotal approach . Application is specific to your work experience . Implications are drawn out for you in your position within the school . Evaluation of the exercise from your point of view.	
General Comments: Grade: _____ Scale used: see reverse side	

(I am indebted to Dr. J. Roulston and Mr. R. Lundin of Kelvin Grove College of Advanced Education for permission to use this criterion checklist.)

(ROE, 1974)

SETTING AN ASSIGNMENT? CHECK ON THESE POINTS

The following is a checklist of questions you might find it helpful to ask yourself when about to set an assignment:

1. What, in as precise terms as I can state them, are the purposes of this assignment?
2. Are my students fully aware of the purposes of this assignment?
3. Is an assignment the most appropriate way to achieve these purposes?
4. Do I expect my students to learn something from doing this assignment? If so, what?
5. What steps should I take to ensure that they do learn these things?
6. What steps should anyone else take to ensure students learn from the assignment? Who else?
7. Do my students know what they are expected to learn? Do they know how and from whom they could or should learn it?
8. Have I made clear to my students all other expectations I have concerning the assignment? What are these expectations? About quantity and quality of work? Amount of reading? Particular viewpoints or "right" answers? Originality? Specifications re format? Policy re extensions? Are my expectations realistic? Does each contribute to the likelihood that the assignment will fulfil its objectives?
9. How significant is the assignment in relation to the course as a whole?
10. Have I adequately explained the worth of the assignment to my students? As an educational experience? As a contribution to assessment? As deserving how much of their time and attention?
11. Have I found out what other demands there are on my students' time?
12. Do my students fully understand where they can expect my guidance or help, and where they cannot?
13. Have I kept the library staff informed of all prescribed and recommended reading in connection with the assignment? Have I kept myself informed of availability of reference material for the assignment?
14. Will the assignment contribute to my teaching of the course? If so, how?
15. Do I intend to provide feedback to students concerning their assignments? If so, with what purposes, and how is the feedback to be organised? How quickly will I be able to provide it?
16. What do I expect to learn from this assignment? Is it designed to provide feedback for me? If so, about what?

17. What will be my criteria for assessing students' assignments? Have my students been fully informed of these criteria?
18. How will I ensure that this assignment is a valuable educational experience for my students?

---oOo---

(I am indebted to Professor Ernest Roe, Director, Tertiary Education Institute, for permission to include the above checklist.)

EVALUATIVE FEEDBACK ON STUDENT ASSIGNMENTS

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ABSTRACT

This paper considers feedback on student assignments as an evaluative communication process largely confined to the written word. It defines where the process begins and its value. It identifies the personnel in the process and illustrates positive approaches to feedback. The main value of the paper lies in the questions it raises in its illustrations of what to do and what to avoid. It is largely a paper for discussion, reflection, and emulation.

INTRODUCTION

Feedback on a student's assignment involves communication and evaluation. Our task is to look at the nature of that evaluative communication so that it can be precise and clear, and as academically and affectively helpful as possible.

SOME NOTES ON COMMUNICATION METHODS

Words spoken and written are of prime importance in communication. But what is said is not always what is heard; what is written is not always what is read. Again, there is often a huge gap in meaning between a sound uttered and the sound written. To take a light-hearted illustration: Dogs in Italy bark "Boo boo", while those in Spain say "How how". In Turkey it's "Hov hov" and at the Kremlin it's "Vas vas". Chinese dogs growl "Wang wang" (Pekinese, no doubt). The bite hurts anywhere in the world.

Words are often consciously or unconsciously accompanied by body language; and there are over 700,000 ways of communicating with body language. Using body language is a somewhat difficult feat in the external mode, but its intrinsic value may explain why we make such strenuous efforts to achieve face-to-face contact (rarely achieved literally). To heighten your sensitivity, try watching television with the volume turned off. See how much you can understand. Try to lip-read the straight-laced newsreader. Watch his eyes when he says, "Joe Bloggs was there." Note how fast action scenes seem unreal when there is no background roar. Watch Lee Trevino playing golf, without saying a word. (You still couldn't keep him quiet, because of his extensive use of body language.) While you may find the above experiences frustrating, you can still make some sense of what is going on. The external student is denied all these cues. Imagine the sense of frustration of the external student, then, if we practise the external mode with only the written word, supplemented perhaps by the occasional spoken word. Accept, then, the importance of the written words added on assignments, for it is often the totality of the message to the student.

WHERE DOES THE FEEDBACK PROCESS START?

Hopefully it will start in the institution's handbook, where grading criteria policy for the institution will be printed for the information of students and lecturers. Nothing is more disconcerting for the student than to have a lecturer A give 11/20 for an assignment, which is an average C on the institution's criteria scale, and have lecturer B give 11/20 for another assignment, which the student knows is an appreciably better piece of work. On enquiry from the student, lecturer B replies, "Oh! On my ratings 11/20 is excellent, equivalent to an A, Distinction."

Similarly, triple criteria of actual marks, letter grades, descriptor grades of Distinction etc. also create confusion. Institutions should opt for one criterion, lest a student does his arithmetic and finds that, on the basis of, say, three assignments and an examination, he has three high Pass scores and one Distinction

which, arithmetically, should total to a solid Credit result; yet he receives a final result of a Pass (albeit, solid). This means also that, whatever private internal recording system is used, it must be consistent with interim feedback to students and final published results.

It is also useful to include in the handbook when results are to be published. This is particularly so if final assessments are made on a terminal or semester basis.

Secondly, spell out unequivocally within the course handbooks, at the very beginning, assignment expectations of students and assessment procedures. Students have at this stage left behind their initial interaction patterns at the institution/handbook level. They are "in the front gate of the institution" and are now operating at the level of interacting with lecturer and course materials.

Ideally, course booklet information will be merely an elaboration of the handbook précis. (The next case would not be the first one in which a student has sued the institution for breach of contract between what was stated in the handbook, from which the student enrolled, and what was delivered in the course materials.) Speaking positively, it does nothing to promote the helping, supportive relationship between lecturer and new student if the receipt of course assignment/assessment materials occasions a rude shock for the student. Very few lecturers would deliberately create dismay, but all must be on guard lest it happens unwittingly.

THE VALUE OF FEEDBACK

On the subject of anxiety, it is helpful to be aware that, in the external mode context, the students seem to feel that they are personally on trial, as well as their work. Hence feedback on assignments says something about them as well as their academic output. Whether or not it arises because external students are isolated, without any immediate reference peers in their local community, is not yet known. Those in intermediary roles between students and lecturers find that students contact them about feedback comments which, to the students, are interpreted as "sarcastic", "insensitive to problems", "ridiculing", etc. Set in a context of a local community suspicious of education, clever people, educated women, wives with developmental aspirations, etc., feedback open to the previous interpretations can often be the last straw which shatters the students' morale.

Since the tone of feedback is so critical to students, should the first assignment be non-assessable in cumulative assessment terms? Should the student be free to use the exercise merely to savour the tone, nature, extent, and style of the lecturer's feedback; in short, to become more familiar with the lecturer as a person? The exercise may provide the lecturer also with the opportunity to articulate expectations, should they not have been documented already in course handbooks.

The experience might also be salutary for students, since most search immediately for their grading mark, while fewer take time to read comments and appraisals within the text of the assignments themselves.

Should lecturers also make a point of telephoning the student a few days after the assignment has been returned? This technique may be particularly helpful if the lecturers are aware that the initial feedback to the new student may seem discouraging.

POSITIVE APPROACHES TO FEEDBACK

Given that there is interaction at both the personal and the academic levels, it is good to see that some institutions provide opportunity for student comment on cover sheets submitted with assignments, while lecturers are similarly provided with space for both personal and academic comments on returning assignments. Experience suggests that students invariably use their comment section on the form; and much of the

comment is essentially personal. Lecturers reply in personal terms and on personal matters as well as on academic work. This exchange is a measure of the rapport established between lecturers and students, and is an indirect indicator of future drop-out rates. Obviously, this extra comment takes time; but the student clearly gets the message: this lecturer is prepared to spend time on me; how reassuring!

Related to this is the note from one lecturer to a student: "One word answers ('Yes' or 'No') are invariably risky and it is usually a good idea to justify your answer with some evidence" (the lecturer's underlining). This is sound academe, but what does it say to the lecturer who returned an essay assignment with a meagre scatter of ticks, and on the front, "O.K. 7/10"?

Further, what is the precise message of a tick or a cross? To describe a more complicated situation, what does a tick mean when it is interspersed between marginal notes which read "Good point" and "True"? Is a tick neither of these?

Students usually undertake studies because they wish to grow academically. Here is a good example of growth stimulation. "This piece of discussion is clearer, better-structured, and more disciplined than your last essay....you've always been scrupulously honest about acknowledging your sources but try to re-phrase the ideas in your own words. You really need have no fear about your own prose style." Another example on a well-intentioned but nevertheless poor effort by a student read: "I enclose two good student essays for your aid should you wish to try again." Here is a genuine attempt to help and support. Should these essays, with the lecturer's evaluations, have been sent out before the students' assignments were submitted or after? to all students or to the few needing help?

Promptness is paramount. Early studies by Rekkedal (1973) confirm this; and maybe a system which imposes submission deadlines and penalties on students should impose similar conditions on lecturers. Is this a feasible suggestion? Certainly, feedback on one assignment is appreciated by students before another is prepared and submitted.

Humour should be part of the normal interchange between lecturers and students. For example: "John, this is really, of course, a very fine example of comprehensive and analytical thinking - coherent, stimulating, and enlightening. I felt privileged to read it....and in return....I correct a couple of spelling mistakes!" But humour can backfire and should be quite unequivocal and used sparingly. For example, while the comment here on spelling is helpful, did the lecturer have nothing academically with which to challenge the good student?

What should be done with spelling mistakes? One lecturer marks every error and has no comment on the content. Another ignores the spelling mistakes and concentrates on the content. Is it reasonable to assume that all lecturers will spell correctly and use correct grammar?

It should be assumed that all comment is legible. Illegible writing conveys a message about how much we care about communication. One lecturer, using a numerical scoring system, gave a student quite a shock when the result read -7/10, until the student realised the lecturer was European and haphazardly wrote 7/10.

The whole point of feedback is to say something worthwhile to the student to promote his growth. One lecturer, helpfully, wrote: "I am much happier with this assignment than the last one." Would this not have been better written: "This assignment is better than the previous one", where the emphasis is on the quality of work? Another alternative is: "Your work is much better this time", where the emphasis is on the student and his work. Did the lecturer mean to convey that the lecturer's increasing happiness is the goal of the whole course? To be correct grammatically, should

not the lecturer have written, "I am happier with this assignment than with the previous one"?

CONCLUSION

Finally, this paper concludes with a reflection on Hiroshima and communication. Faced with the surrender ultimatum from the Allies, the Japanese Government of 1945 replied that they were adopting a policy of *mokusatsu*. The word means literally "to kill with silence". To the Japanese it can be the equivalent of the politician's delaying "no comment", or it can mean "to ignore". The translators unfortunately flashed the "to ignore" message to Allied headquarters and so the nuclear age arrived, at Hiroshima.

The politicians were unwise in using an ambiguous word, the translators were careless in not checking which meaning was meant, but how many students have "bombed out" through delay, no comment, or careless words in feedback?

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USING A COMMUNICATING STYLES SURVEY TO EVALUATE THE INTERACTION PATTERNS OF EXTERNAL STUDENTS IN QUEENSLAND

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ABSTRACT

The theoretical framework around which this study was conceptualised was provided by Jung's theory of psychological types and the Townsville College of Advanced Education's external studies model. The goal of the study was to evaluate interaction patterns of students studying at a distance. The sample consisted of 84 students enrolled in the external Bachelor of Education course at the Townsville College of Advanced Education, Townsville, Queensland.

Two data-gathering devices were used: (a) the NOK Communicating Styles Survey to measure students' interaction styles, and (b) a grade in the students' curriculum course to measure performance. The data were analysed by means of raw scores, the Newman-Kuels multiple comparison technique, Pearson-product correlations, and step-wise regression techniques.

Significant results of the study were that: overall, these subjects have a primary sensor style for transmitting and receiving information; the intuitor style is a significant predictor of performance; the "best" predictor of performance for subjects residing in rural areas was the sensor style, whereas for suburban subjects it was the thinker style.

The paper concludes with a discussion of implications of the findings for student selection into external studies courses and design of external studies programs. It is pointed out that the implications emerging from the study were based on two theoretical positions: the uniqueness of students' communicating styles, and the belief that the interaction between student and lecturer is an important component in quality external studies courses.

People demonstrate basic styles of relating to others and to situations; that is, they transmit and receive information through communicating styles. Diagnosing the communicating styles people use can help to determine the extent to which styles are working constructively.

A theoretical framework around which communicating styles could be conceptualised, and this study designed, was provided by Jung. His work reveals that there are four major communicating styles which individuals use in their approach to work and life. The emphasis given to a particular style is based on the degree to which individuals choose any given style over another.

The four main styles and functions are: *sensor* - experiencing mainly on the basis of one's own sensory perceptions; *feeler* - relating to and understanding experience through emotional reactions and response to feelings; *thinker* - analysing and being logical; and *intuitor* - conceiving, projecting and inducing (Fordham, 1969).

Jung's work has been further developed by Mok (1975, p.2), who posits that, when an orientation towards a style is habitual, it is possible to refer to an individual's *primary* communicating style. Also, people have a *secondary* style which supplements or "backs up" their primary style. A person, for instance, might have a primary sensor style with a secondary feeler style.

Applied to distant students, brief descriptors of the four communicating styles (Mok, 1975, pp. 1-33) are outlined in Figure 1.

Figure 1

CHARACTERISTICS ASSOCIATED WITH THE STYLES (Mok, 1975, p.18)

	EFFECTIVE APPLICATION	INEFFECTIVE APPLICATION
Intuitior Style	original imaginative creative broad-gauged charismatic idealistic intellectually tenacious ideological	unrealistic "far out" fantasy-bound scattered devious out-of-touch dogmatic impractical
Thinker Style	effective communicator deliberative prudent weighs alternatives stabilising objective rational analytical	verbose indecisive over-cautious over-analyses unemotional non-dynamic controlled and controlling over-serious, rigid
Feeler Style	spontaneous persuasive empathetic grasps traditional values probing introspective draws out of feelings of others loyal	impulsive manipulative over-personalises sentimental postponing guilt-ridden stirs up conflict subjective
Sensor Style	pragmatic assertive, directional results-oriented objective - bases opinions on what he actually sees competitive confident	doesn't see long-range implications status-seeking, self-involved acts first, then thinks lacks trust in others domineering arrogant

Hypothesised student behaviours arising from these descriptors are outlined below:

1. *Sensor* - the primary sensor style is characterised by a heavy emphasis on action. The individual student would thrive on getting things done here and now, without unnecessary and time-consuming deliberations. This student is likely to express a direct, down-to-earth approach to study. When the student uses his sensor style, he likes activities, is a self-starter, enjoys competition, and is happy doing many things at once.

2. *Feeler* - the feeler style is characterised by heavy emphasis on the human dimension. Students operating in this style seek and enjoy contact with other students. Their concern for people usually makes them astute in "reading between the lines" to understand the personal meaning in what people say and do. Students using the feeler style demonstrate creative abilities, self-expression, sensitivity, an unstructured approach to study, and will search for study methods that "feel right".
3. *Thinker* - the thinker style is characterised by an emphasis on systematic inquiry and logic. Students will find satisfaction in identifying a problem, developing a variety of possible solutions, weighing them carefully, and testing them to see to it that the most logical systematic approach is followed. The thinker style students usually demonstrate organisation, neatness, orderliness, punctuality in submitting assignments, a systematic approach to study, good planning, and express a desire to learn from tests.
4. *Intuitior* - the intuitior style is characterised by a heavy emphasis on an innovative approach to study. The intuitior style students tend to challenge lecturers' ideas, not for negative or hostile reasons, but rather because they have learned the value of continuous probing. Students using the intuitior style demonstrate a desire to find out the "meaning" of things, an ability to see interrelationships, and satisfaction in finding solutions to problems.

At this point, these communicating styles will be discussed in the context of the T.C.A.E. distance teaching model.

T.C.A.E. DISTANCE TEACHING MODEL

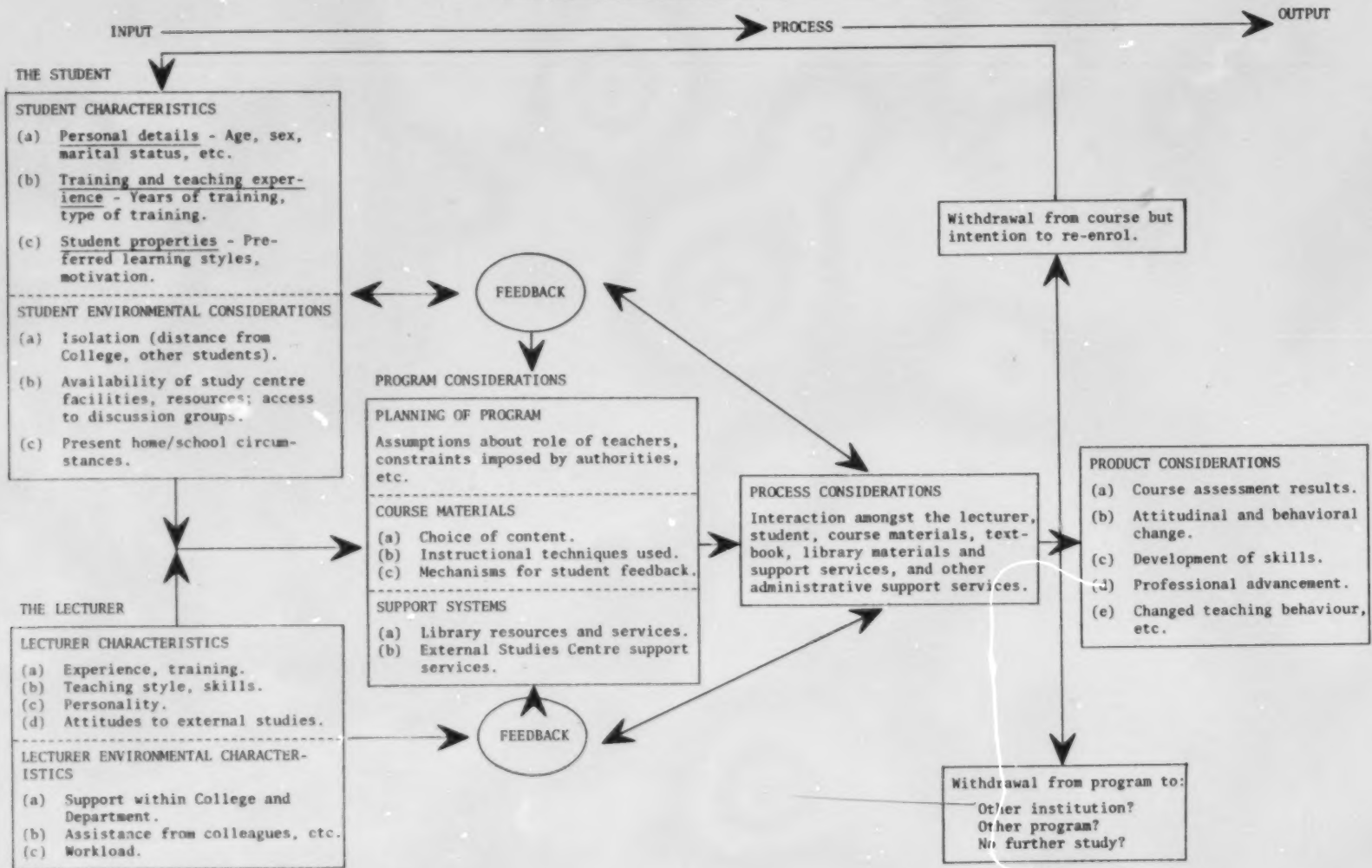
The paradigm (see Figure 2) illustrates the input-process-output components of the T.C.A.E. distance teaching model. A brief description of these components follows:

- (a) Two basic *inputs* could be identified: the *student*, with certain characteristics and with particular environmental circumstances; the *lecturer* with personal and teaching characteristics, and a College environment within which he works.
- (b) These inputs flow to the *program* design, which is based on various assumptions, with course materials and support systems.
- (c) The *process* is the complex of interactions amongst lecturer, student, course materials, library materials, and library staff.
- (d) The *product* considerations are the effects on participants, which might include an increase in relevant knowledge and skills, and changes in teaching behaviours and professional development.

Relationships could be posited between process considerations (interactions or communicating styles of students) and product considerations (student achievement) in the model. This line of discussion could be justified because:

1. If distance teaching is to be successful, it must not only provide course materials and support services, but must also *teach*. Thus, distance educators should seek to discover those interactions that will maximise student achievement.
2. Students interacting with lecturers, library staff, and the administration are likely to become aware of requirements and expectations of the course. Moreover, problems, issues, and concepts raised in the course can be clarified.

FIGURE 2: MODEL TO STUDY THE QUALITY OF EXTERNAL STUDIES COURSES



Hence, their performance should be better than non-interacting students.

3. Interactions, such as personal communication between the student and lecturer, are likely to be supportive of the student's efforts and help minimise withdrawal rates because they should reduce the anxieties associated with studying at a distance.

PURPOSES OF THE STUDY

Arising from the previous discussion, the goal of this study was to identify distant students' communicating styles and explore relationships among communicating styles and performance (process-product considerations). This goal leads to the following questions, which constituted the purposes of the study:

1. What are the specific communicating styles of these students?
2. What relationships exist between the communicating styles?
3. Do these relationships alter according to the subjects' age, sex, years of teaching experience, grade level taught, and geographic location (rural/sub-urban)?
4. Are the students' communicating styles differentially related to their performance?

RESEARCH DESIGN

To explore the relationships between communicating styles and performance, a correlational design was selected because:

- (a) the study was concerned with exploring relationships between performance and variables with which performance was hypothesised to be related within an external studies instructional mode;
- (b) it enables the researchers to measure a number of variables simultaneously;
- (c) the theoretical framework and T.C.A.E. external studies model indicate that communicating styles are contributing factors to student performance, and this design facilitates the study of these relationships;
- (d) it provides information on the degree of relationship between the variables and provides data on the ways they are related; and
- (e) correlational designs are especially useful for exploratory studies in areas where little previous research is available (Huck and Cormier, 1974).

The way this correlation design was applied to this study is set out below. The first step in designing the study was to attempt to identify some of the specific variables which appeared to be important in external students' performance. The communicating style variables identified appeared pertinent in the theoretical framework and the instructional model devised by the T.C.A.E. Hence, communicating styles seemed worthy of study to understand student success in external studies courses.

The second step was to select subjects who could be measured on the variable with which the research was concerned. It was considered important to select a group of subjects drawn from a narrowly defined population; otherwise variables might be obscured by the presence of subjects who differed widely from one another.

The third consideration in the research design was the collection of data. The Mok Communicating Styles Survey (C.S.S.) was selected to measure students' communicating styles, and performance was measured by a student grade on a major project in an Education course which required student-lecturer communication.

Finally, the data were analysed by correlating measures thought to be related to student success (communicating styles) with the measures of student success itself.

METHOD

Subjects

The sample group comprised 84 distant students who were enrolled in the Townsville College of Advanced Education's in-service Bachelor of Education course. The subjects comprising the sample study were selected by a random sample of 180 students enrolled in the course. This sampling method was used because the investigators thought it would provide sufficient statistics about the total population. Sixty-five percent of the participants in this study were between the ages of 22 and 30 years. The remaining 35 percent were between the ages of 31 and 50 years. Forty-two percent of the sample were males and 58 percent females. All subjects were teachers in the primary school. Fifty-seven percent of subjects were rural dwellers and 43 percent resided in suburban area.

Research Instrument

In an attempt to tap teachers' communicating styles, the Mok Communicating Styles Survey (C.S.S.) was selected. The C.S.S. is designed to measure the subjects' relative strength of use of the four major styles: Sensor, Feeler, Thinker, and Intuitior. Each style represents a communicating (sending and receiving) style that individuals use in interpersonal communications.

Based on Jung's theories, the C.S.S.'s four communicating style scales are: Sensor (S) - experiencing mainly on the basis of one's own sensory perceptions; Feeler (F) - relating to and understanding experience through emotional reactions and response to feelings; Thinker (T) - analysing, ordering in logical fashion; and Intuitior (I) - conceiving, projecting, and inducing.

The C.S.S. used in this study consisted of 18 self-descriptive statements each of which is followed by four endings. Subjects were asked to indicate the order in which they felt each ending was most characteristic of themselves by filling in the ending with the numbers 6, 4, 3, or 1: 6 for the ending most like them, 4 for the next most, 3 next most, and 1 least like them. For example:

I am likely to impress others as:

A. practical and to the point	<u>1</u>
B. emotional and somewhat stimulating	<u>4</u>
C. astute and logical	<u>3</u>
D. intellectually oriented and somewhat complex.	<u>6</u>

Mok hypothesises that it is necessary to explore the relative emphasis of the four communicating styles under favourable circumstances (FC) as well as the emphasis they are given under stress conditions (SC).

Representative examples of the C.S.S.'s items under favourable conditions are:

- . I am likely to impress others as practical and to the point (S).
- . In the way I work on projects, I may want it to be stimulating and involve lively interaction with others (F).

- . In communicating with others I may convey impatience with those who express ideas that are not obviously thought through (T).
- . In terms of the dimension of time, I probably concentrate most on significant long-range actions I plan to take and how they relate to my life's direction (I).

Examples of C.S.S.'s items under stress conditions include:

- . Sometimes I suspect I may "come through" to others as being too concerned with specifics and matters related to the "how to" (S).
- . In tense meetings with others, I may occasionally let "my hair down" too freely, expressing feelings which might have been better left unsaid (F).
- . When the "chips are down", I feel it is preferable to stick to a systematic approach that has proved to be effective before, even though by taking more risks I might win a few more victories (T).
- . When others pressure me, I am inclined to step back into my own world of thought (I).

The C.S.S. was selected in this study because:

- (i) the instrument is easily interpreted by subjects (this was seen as important because subjects were to receive feedback on their communicating style);
- (ii) content and construct validity of the instrument has been determined on the theories of Jung (Pettersen, 1979), hence it has a strong theoretical framework;
- (iii) the test, re-test reliability has been reported at .97 (Pettersen, 1979).

To collect data on student performance, results of a major project in an Education course were used. This project required students to:

- (a) report on a specific case situation related to an aspect of curriculum in their teaching situation;
- (b) discuss with the lecturer the topic selected;
- (c) suggest viable and defensible solutions to specific problems posed in the case study;
- (d) develop students' research ability; and
- (e) show evidence of independent decision-making in the case study, such as evaluating a choice between two or more alternative solutions to a problem.

Examples of case situations selected included: "A case study to revise the reading curriculum for Grades 1 to 4"; "A case study of the use of the Physical Education Syllabus in Grades 5 to 7"; "Developing a reading program for culturally deprived pupils".

The lecturers in the curriculum course graded the students' projects on a 1 to 15 scale. These scores were used as the performance measure in this study. Inter-rater reliability was dealt with through frequent "swapping" of marked projects. This performance measure was used because the investigators believed that the major project would mirror the interaction between student and lecturer which is a significant process in the T.C.A.E. model.

Analytical Procedures

Three types of analytical procedures were selected to explore the data gathered in this study:

- (a) Means of raw scores were computed for each of the four communicating styles under favourable conditions (FC) and stress conditions (SC) measured by the C.S.S. These scores were sorted into the following categories according to the subjects' age, sex, years of teaching experience, grade level taught, and geographic location. The Newman-Keuls statistical technique of multiple-comparisons was used to determine significant differences between each mean and every other mean (Ferguson, 1976).
- (b) Pearson product-moment correlations were computed to determine relationships between each of the four communicating styles under favourable and stress conditions.
- (c) Stepwise regression analysis was used to determine which communicating style (sensor, feeler, thinker, intuitor) was the best predictor of performance.

Data were collected during November-December, 1979. No names appeared on the C.S.S. There was some population mortality as subjects did not always complete personal data items, for example, age, sex. The .05 level was accepted as the level of statistical significance for correlations to be reported and for the difference between the means.

RESULTS

The discussion which follows presents the findings pertinent to the purposes of this study.

Communicating Styles

Table 1, which provides summary statistics of the subjects' communicating styles, shows, by the use of asterisks, differences between each mean and every other mean which proved to be significant under both favourable and under stress conditions. Thus, under favourable conditions, it would appear that the primary communicating style is sensor; the secondary communicating style is comprised of a cluster of two styles - feeler and thinker. However, under stress conditions, the primary communicating styles are a cluster, formed by thinker and sensor styles; secondary styles are another cluster - feeler and intuitor.

Table 1: Levels of Statistical Significance of Difference between Means.

	Favourable Conditions				Stress Conditions			
	I ₁	F ₁	T ₁	S ₁	F ₂	I ₂	S ₂	T ₂
$\bar{X}_1$	25.75	31.41	32.76	35.86	$\bar{X}_2$	27.34	28.05	35.30
I ₁	-	**	**	**	F ₂	-	-	**
F ₁		-	-	**	I ₂		-	**
T ₁			-	**	S ₂		-	-
S ₁				-	T ₂			-

Note: N = 84

** < .01

I₁, F₁, T₁ and S₁ relate to favourable conditions.

F₂, I₂, S₂ and T₂ relate to stress conditions.

Table 2 presents Pearson correlations between all possible combinations of the four communicating styles under favourable and stress conditions. The table indicates that there are no high positive or high negative relationships existing among the four styles (Huck, Cormier, and Bounds, 1974). Under favourable conditions, however, the highest negative correlation ($r = -.48$; $p < .01$) recorded was between the sensor and intuitor styles. There were no positive correlations. Under stress conditions, the highest negative correlation ($r = -.61$; $p < .01$) existed between the feeler and thinker styles. There were no significant positive correlations.

Table 2: Intercorrelations among the Four Communicating Styles.

Favourable Conditions					Stress Conditions				
	S ₁	F ₁	T ₁	I ₁		S ₂	F ₂	T ₂	I ₂
S ₁	-				S ₂	-			
F ₁	-.20*	-			F ₂	-.26**	-		
T ₁	-.33**	-.17	-		T ₂	-.23*	-.61**	-	
I ₁	-.48**	-.46**	-.17	-	I ₂	-.40**	-.50**	-.07	-

Note: N = 84 df = 1,83

* $p < .05$

** $p < .01$

The stepwise regression shows (see Table 3) that 6 percent of the variance in performance was accounted for by the sensor style under favourable conditions (S₁). Moreover, the analysis indicates that S₁ had an F value significant at the .05 level.

Table 3: Regression of Performance Scale Scores on Communicating Style Scale Scores.

	R	R ²	F
S ₁	.24	.06	3.78*
T ₂	.27	.07	1.11
I ₁	.29	.08	.76
T ₁	.32	.10	1.14
F ₁	.33	.11	.36
S ₂	.33	.11	.47
I ₂	.33	.11	.13
F ₂	.36	.13	1.35

Note: N = 64 df = 8,55

* $p < .05$

Communicating Styles by Categories

To obtain additional insights into subjects' communicating styles, data were analysed in categories, according to subjects' age, sex, years of teaching experience, grade level taught, and geographic location (rural/suburban). Refer to Tables 4 and 5 for tables showing levels of statistical significance between means by categories and results of stepwise regression analysis.

Age

Initially, data on subjects were divided into two age groups - over and under 30 years. Findings revealed that subjects under and over thirty had identical preferences for communicating styles. The primary styles under favourable conditions were a cluster of sensor and thinker styles; the secondary style was feeler. With stress conditions there were two clusters: primary styles - sensor and thinker, and secondary styles - feeler and intuitor.

Table 4: Levels of Statistical Significance of Difference Between Means By Categories
(Newman-Keuls Technique)

Age <30 (N = 42)								Sex - Males (N = 27)							
Favourable Conditions				Stress Conditions				Favourable Conditions				Stress Conditions			
I ₁	F ₁	T ₁	S ₁	F ₂	I ₂	T ₂	S ₂	I	F	T	S	F	I	T	S
$\bar{X}$ 25.90	31.48	32.69	35.14	$\bar{X}$ 28.17	28.31	34.98	35.43	$\bar{X}$ 25.93	29.32	33.63	36.56	$\bar{X}$ 26.48	28.00	35.48	36.04
I ₁	**	**	**	F ₂	-	-	**	I	-	*	**	F	-	-	**
F ₁	-	-	*	I ₂	-	-	**	F	-	*	**	I	-	-	**
T ₁	-	-	-	T ₂	-	-	-	T	-	-	-	T	-	-	-
S ₁	-	-	-	S ₂	-	-	-	S	-	-	-	S	-	-	-
Age >30 (N = 22)								Sex - Females (N = 37)							
Favourable Conditions				Stress Conditions				Favourable Conditions				Stress Conditions			
I ₁	F ₁	T ₁	S ₁	F ₂	I ₂	T ₂	S ₂	I	F	T	S	I	F	S	T
$\bar{X}$ 25.41	30.95	32.82	37.73	$\bar{X}$ 26.68	28.18	35.36	35.77	$\bar{X}$ 24.49	32.41	32.68	35.78	$\bar{X}$ 28.54	28.89	34.70	35.62
I ₁	-	**	**	F ₂	-	-	**	I	-	**	**	I	-	-	**
F ₁	-	-	**	I ₂	-	-	**	T	-	-	*	F	-	**	**
T ₁	-	-	-	T ₂	-	-	-	F	-	-	-	S	-	-	-
S ₁	-	-	-	S ₂	-	-	-	S	-	-	-	T	-	-	-
Years of Teaching Experience								Grade Level Taught							
1 - 4 Years (N = 22)								Grades K - 4 (N = 28)							
Favourable Conditions				Stress Conditions				Favourable Conditions				Stress Conditions			
I	T	F	S	F	I	T	S	I	F	T	S	F	I	T	S
$\bar{X}$ 26.36	31.23	32.0	35.64	$\bar{X}$ 27.55	30.45	32.91	35.36	$\bar{X}$ 25.32	31.29	32.43	36.71	$\bar{X}$ 25.82	28.25	35.07	36.50
I	-	**	**	F	-	-	*	I	-	**	**	F	-	-	**
T	-	-	*	I	-	-	-	F	-	-	**	I	-	-	**
F	-	-	-	T	-	-	-	T	-	-	*	T	-	-	-
S	-	-	-	S	-	-	-	S	-	-	-	S	-	-	-
5 > Years (N = 44)								Grades 5 - 7 (N = 35)							
Favourable Conditions				Stress Conditions				Favourable Conditions				Stress Conditions			
I	F	T	S	I	F	T	S	I	F	T	S	I	F	S	T
$\bar{X}$ 25.27	31.02	33.57	36.59	$\bar{X}$ 26.55	28.25	35.48	35.55	$\bar{X}$ 25.54	31.69	33.09	35.97	$\bar{X}$ 28.06	29.17	34.77	35.00
I	-	**	**	I	-	-	**	I	-	**	**	I	-	-	**
F	-	-	**	F	-	-	**	F	-	-	*	F	-	**	**
T	-	-	*	T	-	-	-	T	-	-	-	S	-	-	-
S	-	-	-	S	-	-	-	S	-	-	-	T	-	-	-
Geographic Location - Suburban/Rural															
Suburban (N = 29)								Rural (N = 39)							
Favourable Conditions				Stress Conditions				Favourable Conditions				Stress Conditions			
I	F	T	S	I	F	T	S	I	F	T	S	I	F	T	S
$\bar{X}$ 25.31	32.52	33.34	34.59	$\bar{X}$ 26.66	28.17	35.10	36.03	$\bar{X}$ 26.38	30.41	32.46	37.08	$\bar{X}$ 27.18	28.97	34.90	35.30
I	-	**	**	I	-	-	**	I	-	*	**	I	-	-	**
F	-	-	-	F	-	-	**	F	-	-	**	F	-	-	**
T	-	-	-	T	-	-	-	T	-	-	*	T	-	-	-
S	-	-	-	S	-	-	-	S	-	-	-	S	-	-	-

Note: * $p < .05$
** $p < .01$

Table 5: Regression of Performance Scale Scores on Communicating Style Scale Scores.

Age							Years Teaching Experience								
<30			>30			1 - 4 Years			5 or more years						
R	R ²	F	R	R ²	F	R	R ²	F	R	R ²	F				
I ₂	.39	.15	7.18**	I ₂	.54	.29	8.28**	T ₂	.28	.08	1.81	I ₂	.33	.11	5.13**
I ₁	.47	.22	3.63**	F ₂	.57	.33	1.18	I ₂	.47	.22	3.40*	T ₁	.39	.15	2.26
F ₂	.52	.28	2.95	F ₁	.59	.36	.43	S ₂	.49	.24	.49	F ₂	.42	.18	.33
F ₁	.59	.35	3.98**	I ₁	.60	.36	.99	S ₁	.50	.25	.27	F ₁	.45	.21	1.59
S ₂	.62	.39	2.39	T ₂	.60	.36	.84	T ₂	.51	.26	.53	S ₂	.45	.21	.12
T ₂	.70	.49	7.26**	S ₁	.61	.37	.69	I ₁	.51	.26	.15	T ₂	.48	.23	1.07
T ₁	.71	.50	.69	T ₁	.61	.37	.15	F ₁	.51	.26	.16	S ₁	.48	.23	.38
S ₁	.71	.50	.85	S ₂	.61	.37	.18	F ₂	.51	.26	.86	T ₁	.49	.24	.12
N = 42; df 8,33.			N = 22; df 8,13.			N = 22; df 8,13.			N = 44; df 8,35.						

Sex							Grade Level Taught								
Males			Females			K - 4 Grades			5 - 7 Grades						
R	R ²	F	R	R ²	F	R	R ²	F	R	R ²	F				
T ₁	.23	.05	1.38	I ₂	.58	.33	17.53**	I ₂	.53	.29	10.62**	I ₂	.38	.15	5.68**
S ₂	.25	.06	.30	F ₁	.63	.39	3.70	S ₁	.55	.32	.82	F ₂	.56	.32	8.01**
I ₁	.26	.07	.21	F ₂	.67	.45	2.97	T ₁	.59	.35	1.37	S ₂	.61	.38	2.95
I ₂	.28	.08	.17	T ₂	.69	.48	2.10	S ₂	.60	.37	.69	T ₂	.74	.55	10.89**
S ₁	.28	.08	.70	I ₁	.71	.51	1.58	F ₁	.61	.37	.91	S ₁	.74	.55	.46
T ₂	.28	.08	.90	S ₂	.72	.52	.51	T ₂	.61	.37	.12	I ₁	.74	.55	.17
F ₁	.28	.08	.75	S ₁	.72	.52	.39	F ₂	.61	.37	.19	T ₁	.74	.55	.10
F ₂	.28	.08	.95	T ₁	.72	.52	.11	I ₁	.61	.37	.87	F ₁	.75	.56	.11
N = 27; df 8,18.			N = 37; df 8,28.			N = 28; df 8,19.			N = 35; df 8,26.						

Geographic Location							
Suburban			Rural				
R	R ²	F	R	R ²	F		
I ₂	.28	.08	2.54	I ₂	.36	.13	5.73**
S ₂	.43	.18	3.67	T ₂	.42	.18	1.99
F ₂	.56	.31	4.98*	S ₁	.46	.22	1.67
T ₂	.73	.53	12.27***	F ₂	.49	.24	1.26
I ₁	.74	.55	.87	S ₂	.65	.42	10.23**
T ₁	.74	.55	.18	T ₂	.68	.47	2.56
F ₁	.74	.55	.15	F ₁	.69	.48	.99
S ₁	.74	.55	.15	I ₁	.69	.48	.26
N = 31; df 4,26.			N = 39; df 8,30.				

Note: * $p < .05$
 ** $p < .01$

Pearson product-moment correlations revealed that: (a) with the under-30 age group there was a negative correlation ($r = -.69$; $p < .01$) between intuitor and sensor communicating styles under favourable conditions and (b) with the over-30 age group a negative correlation ($r = -.71$; $p < .01$) between feeler and thinker communicating styles under stress conditions.

Table 5 reveals that with the under-30 age group 50 percent of the variance in performance can be accounted for by communicating styles. Of this variance: I_2 (intuitor style under stress) accounts for 15 percent; I_1 (intuitor style under favourable conditions) for 7 percent; F_1 (feeler style under favourable conditions) 7 percent; and T_1 (thinker style under favourable conditions) 10 percent. Further, the table shows that all had F values significant at the .01 level.

With the over-30 age group Table 5 reveals that 37 percent of the variance in performance can be accounted for by communicating styles. Of this variance 29 percent can be accounted for by I_2 (intuitor style under stress). I_2 had an F value significant at the .01 level.

Sex

Here data were analysed according to subjects' sex - male and female. Findings revealed that with males, under favourable and stress conditions, the primary communicating styles were thinker and sensor. However, under favourable conditions the secondary style was feeler, while under stress conditions it was both feeler and intuitor.

Pearson-product moment correlations among the four communicating styles for males showed a negative correlation ($r = -.72$; $p < .01$) under favourable conditions between intuitor and sensor styles. Under stress conditions there was a low but significant negative correlation ($r = -.48$; $p < .01$) between feeler and intuitor styles.

With females, under favourable conditions, the primary communicating styles were feeler and sensor, whereas under stress conditions they were sensor and thinker. The secondary communicating style under favourable conditions was thinker, but under stress was a cluster of intuitor and feeler styles.

There were negative correlations for females between feeler and intuitor styles under favourable conditions ($r = -.59$; $p < .01$); and between sensor and intuitor styles under stress conditions ($r = -.52$; $p < .01$).

With males (see Table 5) 8 percent of the variance in performance could be accounted for by communicating styles. However, no significant F value was revealed in the analysis. In contrast, with females, 37 percent of the variance in performance could be accounted for by communicating styles. Of this variance, I_2 (intuitor style under stress) accounted for 29 percent; I_2 had an F value significant at the .01 level.

Years of Teaching Experience

By dividing subjects according to the number of years of teaching experience (1 to 4, and 5 or more years), data revealed for the 1 to 4 years' teaching group that under favourable conditions the primary styles were a cluster of sensor and feeler, with thinker as the secondary style. Under stress conditions no clear clusters of styles emerged.

For the 1 to 4 years' teaching group there were negative correlations between intuitor and thinker styles under favourable conditions ($r = -.78$; $p < .01$), and between feeler and thinker styles under stress conditions ($r = -.50$; $p < .01$).

With the 5 or more years' teaching group the primary style, under favourable conditions, was sensor and under stress was a cluster of thinker and sensor styles. However, the secondary styles under favourable conditions were a cluster of feeler and thinker styles and under stress feeler and intuitor styles.

For the 5 or more years' teaching group, there were negative correlations between feeler and intuitor styles under favourable conditions ($r = -.47$; $p < .01$) and between thinker and feeler styles under stress ($r = -.66$; $p < .01$).

Table 5 reveals that with the 1 to 4 years' teaching group, communicating styles accounted for 26 percent of the variance in performance. Further, I_2 (intuitor style under stress) accounted for 18 percent of this variance, with an F value significant at the .01 level.

For the 5 or more years' teaching group, 24 percent of variance in performance was accounted for by communicating styles; of this 11 percent could be explained by I_2 (intuitor style under stress), with an F value significant at the .01 level.

Grade Level Taught

By categorising subjects according to grade level taught (K to 4, and 5 to 7), data revealed for the K to 4 group that the primary style under favourable conditions was sensor, and under stress both thinker and sensor styles. The secondary styles were, under favourable conditions, a cluster of feeler and thinker styles, and under stress feeler and intuitor styles.

The K to 4 group, recorded negative correlations between intuitor and sensor styles under favourable conditions ($r = -.57$; $p < .01$) and between feeler and thinker styles under stress ($r = -.63$; $p < .01$).

For the 5 to 7 group, the primary styles under favourable and stress conditions were a cluster of thinker and sensor styles. Secondary styles were feeler and intuitor for both conditions. Data showed negative correlations between intuitor and sensor styles under favourable conditions ($r = -.53$; $p < .01$) and between feeler and thinker styles under stress ($r = -.62$; $p < .01$).

For the K to 4 teachers, communicating styles accounted for 37 percent (see Table 5) of the variance in performance. Of this, 29 percent could be explained by I_2 (intuitor style under stress), which is significant at the .01 level.

With the 5 to 7 teachers, 56 percent of variance in performance (Table 5) could be explained by communicating styles. Of this variance, both T_2 (thinker style under stress) and F_2 (feeler style under stress) each account for 17 percent, and I_2 (intuitor style under stress) 15 percent. All of these are significant at the .01 level.

Geographic Location

Subjects were categorised according to their teaching location - suburban or rural. For the suburban group, under favourable conditions, no clear clusters of primary or secondary styles emerged. However, under stress conditions, the primary styles were formed by a cluster of sensor and thinker styles; secondary styles were intuitor and feeler.

For the suburban group, negative correlations were found between intuitor and sensor styles under favourable conditions ($r = -.80$; $p < .01$); and between feeler and intuitor styles under stress conditions ($r = -.62$; $p < .01$).

The primary style for rural subjects under favourable conditions was sensor; under stress it was a cluster of two styles - thinker and sensor. The secondary style under favourable conditions was a cluster of feeler and thinker styles, under stress it was a cluster of intuitor and feeler styles.

With the rural subjects negative correlations were found between feeler and intuitor styles under favourable conditions ($r = -.60$; $p < .01$) and between feeler and thinker styles under stress ($r = -.61$; $p < .01$).

Table 5 reveals that for subjects in suburban locations, 55 percent of the variance in performance could be accounted for by communicating styles. Of this variance, T_2 (thinker style under stress) accounts for 22 percent (significant at the .01 level) and F_2 (feeler style under stress) 13 percent (significant at the .05 level).

For rural subjects, communicating styles accounted for 48 percent of the variance in performance. Of this, S_2 (sensor style under stress) accounts for 18 percent and I_2 (intuitor style under stress) 13 percent. Both are significant at the .01 level.

DISCUSSION

This study has examined communicating styles which reflect the ways these distant students transmit and receive information. From an analysis of the results, three findings are interesting.

First, the finding that these students, overall, have a primary sensor style under favourable conditions and a cluster of both primary sensor and thinker styles under stress suggests that within the T.C.A.E. model:

- (i) These subjects' communicating style under favourable conditions is characterised by heavy emphasis on action. That is, they thrive on getting things done here and now, without unnecessary and time-consuming deliberations. It could be inferred that they believe in the significance of what they are doing, and should therefore exploit, in constructive ways, the opportunities for satisfaction that each day affords (Mok, 1975, p.10). Consequently, in this style, these subjects are likely to express a direct, down-to-earth approach to their study tasks.
- (ii) These subjects are, under stress, characterised by action as well as relying heavily on logic and planned problem-solving, that is, the thinker style. At their worst, under stress, these subjects might fail to consider sufficiently the long-range consequences of their actions, as well as being perceived as "dry" and "cold" in the assignment presentations.

Second, the negative correlations, for the total sample, between sensor and intuitor styles (under favourable conditions) and between feeler and thinker styles (under stress) suggest that:

- (i) Under normal conditions those students who demonstrate the characteristics of being doers, with a heavy emphasis on action, are not likely to be innovative, to enjoy theory or conceptual thinking, or to show long-range thinking.
- (ii) Under stress, those students who rely heavily on logic and planned problem-solving are unlikely to be concerned about the feelings of others and could be impersonal and unemotional in their communications with lecturers.

Third, the findings supporting relationships between communicating styles and performance reveal that:

- (i) Students' intuitor style is a significant predictor of performance for subjects who are females, under and over 30 years, have less or more than 5 years' teaching experience, teach below Grade 7, and reside in rural geographic locations. Consequently, for these subjects, there is a relationship between being innovative, creative, and original, and performance.
- (ii) The "best" predictor of performance for rural subjects was sensor style (under stress), whereas for suburban subjects it was thinker style (under stress). Hence, it could be inferred that rural students, with the problems of isolation and infrequent access to study centres, need to be self-starters and action-oriented to get through their assignments. However, suburban subjects, with access to study groups, need systematic planning.
- (iii) Students' interactions with lecturers, library staff, and administrative personnel could be characterised by: students requesting their assignments back as soon as possible; emphasis on competition rather than co-operation; students seeking direct answers to questions, for example, "Yes, that's correct" and "Right", rather than "long-winded" responses.

These findings raise a number of questions: Why did the data fall out the way they did? Why did intuitor style fail to dominate as a primary style, yet consistently correlated with performance? Three reasons may account for these results.

First, the fact that sensor was the dominant communicating style might be explained by the nature of the external students' role. Essentially, to be effective in studying at a distance they should know how to organise and maintain a study schedule that maximises productive activities and minimises time lost through confusion. Consequently, this scenario would appear to relate to the sensor style, which is characterised by a heavy emphasis on action, where the student thrives on getting things done without unnecessary time-consuming deliberations. Indeed, it could well be a commonsense expectation that to complete external assignments on time and meet deadlines requires a student who sizes up the situation quickly, does not waste time, and has an energetic approach to work.

Second, that intuitor failed to be a primary style might be explained by the belief that: (a) external students are so heavily involved in maintenance tasks (for example, meeting assignment deadlines, family and work commitments) that they do not approach their work creatively or with any long-range plan, and (b) the intuitor style has not been developed or reinforced by the teaching institution. Hence, lecturers working with students may not have created an environment for students to investigate innovations, probe the "meaning" of concepts, and suggest viable new solutions to problems raised in assignments.

Third, that intuitor style consistently related to performance across subject categories seems to fit the practical and theoretical expectations arising from the T.C.A.E. model. It suggests that subjects who interacted with their lecturer about the major project, who concentrated on process, and who thought through implications of their curriculum proposals would outperform students who did not demonstrate these behaviours.

IMPLICATIONS

From the discussion, the following implications for student selection and design of external courses are suggested:

Implications for Student Selection into External Courses

Several implications can be derived from this research for selection of students:

- (i) Since the results of this study have shown that communicating styles do have differential relationships with student performance, it can be argued that this variable might be used for selection procedures. While the findings have been interpreted with caution, they represent fertile leads for further research in student selection.
- (ii) A customary procedure for candidate selection has been to use number of years' teaching and the previous study record. However, communicating styles survey data might add to the repertoire of screening devices and so increase the knowledge about candidates selected.
- (iii) If external studies performance criteria require students to have specific communicating styles - such as intuitor - then these investigators suggest that it will probably be more economical to select students who demonstrate those qualities than attempt to develop such behaviours.

Implications for the Design of External Courses

The findings of this study offer the following suggestions for the design of external studies courses:

- (i) Unfortunately, there is no simple way to predict with accuracy the performance of external students. However, as this study has shown, there are certain communicating styles which are related to student performance. These results therefore imply that distance teachers might place emphasis on the development of these variables in the instructional design of their courses. This might be done by providing feedback to the student about his communicating style, and the need to draw on other communicating styles to ensure success.
- (ii) External students early in their courses should be made aware of the personality qualities that are matched by effective performance. The courses should be designed in such a way that students markedly deficient in these personal qualities would receive counselling.
- (iii) In the theoretical analysis (Mok, 1975, p.2), Jung's work indicated that the emphasis given to a particular communicating style is highly personal. One might expect, therefore, that distance teachers develop the ability to "read" students' communicating style and adapt accordingly. Hence, distance teachers might need to be instructed in communicating styles technology.

CONCLUSION

The foregoing discussion which emerged from the results of the study is based on two overriding theoretical positions: first, the uniqueness of the student's communicating styles, and second, the belief that the interaction between student and lecturer is an important component in quality distance teaching course design. This study has generally supported the position that students' communicating styles relate to performance. Moreover, the study has shown that distance teachers ought to make maximum use of the communicating styles that students bring to study courses. Such action might make studying at a distance more satisfying. Nevertheless, a major challenge for future researchers is to devise ways of developing maximum interaction between distance teachers and their students.

NOTE

A rationale for investigating process-product relationships is discussed in:

DUNKIN, M. and BIDDLE, b. (1974) The Study of Teaching. New York: Holt, Rinehart and Winston.

MEDLEY, D. (1977) Teacher Competence and Teacher Effectiveness: A Review of Process-Product Research. Washington: American Association of Colleges for Teacher Education.

REFERENCES

FERGUSON, G.A. (1976) Statistical Analysis in Psychology and Education. Tokyo: McGraw-Hill Kogakusha.

FORDHAM, P. (1968) An Introduction to Jung's Psychology. Harmondsworth: Penguin.

HUCK, S.W., CORMIER, W.H., and BOUND, W.G. (1974) Reading Statistics and Research. New York: Harper and Row.

MOK, P.P. (1975) Communicating Styles Technology. Dallas: T.A. Press.

PETTERSON, J.L. (1979) Personal communication to authors, 1 October.

THE PREPARATION, IMPLEMENTATION, AND EVALUATION OF NON-PRINT MEDIA IN A MATHEMATICS CURRICULUM STUDIES COURSE

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ABSTRACT

The Mathematics Curriculum Studies course in the Bachelor of Education degree was offered in an external mode by the Townsville College of Advanced Education for the first time in 1979. External students encounter problems in obtaining direct access to curriculum materials and in seeing demonstrations of teaching techniques which are available to internal students. In an effort to reduce some of these problems, three types of non-print media were used.

Slide/tape sequences and videotapes were produced to complement the written materials in the course. Students were asked to respond to a questionnaire, part of which sought to evaluate the quality of production of these materials and their educational value. A kit of curriculum materials was planned and subsequently modified before being distributed.

INTRODUCTION

The course MS410/MS411: Mathematics, is an Advanced Curriculum Study elective within the fourth-year, in-service Bachelor of Education program at Townsville College of Advanced Education. Students enrol for the course in their second year of the program. The course is offered in two modes - viz., internal and external - and takes two semesters to complete - MS410 in first semester followed by MS411 in second semester.

Within the Math/Science Division, the policy with respect to curriculum studies courses is to enable students to have "hands-on" experience of materials which can be used in the primary classroom. This policy is easily implemented in the case of internal students, but it presents a challenge when one is seeking to implement it within the external mode. One solution to the problem is to offer certain modules of the course during a compulsory residential school, but this has not been possible within the College's present policy of voluntary rather than compulsory vacation schools. Hence, an alternative solution is needed.

External students fall into two categories by virtue of their geographical location:

1. students who have access to a regional study centre or the College Library Resources Centre, and
2. students who do not have such access.

For students in the first category, some access to curriculum materials and audio-visual materials can be given by placing these materials in a study centre for an extended period depending on the number of centres in use. How to provide access to these materials for students in the second category above is addressed in this paper.

A SLIDE/TAPE SEQUENCE AND CURRICULUM KIT

One module in MS410 examines two comparatively recent developments in primary mathematics in England. They are the Nuffield Mathematics Project and the Bulmershe Mathematics Project, both of which contain materials to which students should have access. The Nuffield Project's active-learning approach is amply illustrated in the guides produced for teachers. It was decided that a suitable way to portray the spirit of this approach was by means of a series of slides with an accompanying taped commentary.

The Bulmershe Project, based on the work of Z.P. Dienes, contains a range of card materials to be used with concrete manipulative materials such as Logiblocs and Multi-base Arithmetic Blocks. In order to give students an overview of these materials, a series of slides with an accompanying taped commentary was considered appropriate.

Preparation of the slides and audio-tape was a joint venture involving people from the media section of the College, the lecturer, and his research assistant. The research assistant was assigned the task of collecting materials and articles on both projects, and after considerable reading became quite familiar with them. After instruction in what was to be portrayed by the slides, he then collected a range of possible pictures from which to choose. The number was narrowed down by budget constraints to 26 slides. The media instructor then schooled the research assistant in the use of the camera and the effective use of titles. The research assistant photographed the slides (twice in some cases). When sequences for the slides were worked out, the research assistant prepared accompanying commentaries. These written commentaries were edited by the lecturer, and then the research assistant produced a master tape with the assistance of a media technician who also added music at selected places on the tape and signals (both audible and silent) to denote slide changes.

In an attempt to give external students "hands-on" experience of the Bulmershe materials, it was planned to assemble a kit of these materials, and to circulate the kit among these students. However, this plan had to be abandoned for the 1979 academic year for two reasons. First, the materials were delayed in transit from the United Kingdom and did not arrive until the end of first semester, by which time students had completed MS410. Second, the volume of materials prohibited their being packed into a kit which was easily transportable.

For the 1980 academic year, the Bulmershe materials have been packaged into separate sets of cards. Students have been encouraged to borrow one set of cards from the Library Resources Centre in order to gain first-hand experience with at least some of the materials. At the time of writing this paper, no evaluation of the 1980 procedure has been undertaken.

EVALUATION OF THE SLIDE/TAPE SEQUENCES

At the conclusion of the course, students were asked to complete an evaluation questionnaire (Appendix A). Of the 20 students in the MS410 course, 12 replied to the specific questions relating to the slide/tape sequences. Data for these are shown in Table 1.

A study of Table 1 indicates that all respondents used the slide/tape sequences as part of their study of the module, and that the sequences were successful in achieving their objectives (Questions 2 and 3). The majority of students felt that the slides conveyed their message clearly and that the taped commentaries enhanced the message being conveyed by the slides (Questions 4 and 5). Only one student would have preferred a written commentary with the slides (Question 6). Students were almost equally divided regarding the value of the slide/tape sequence on the Nuffield Project (Question 7), while a majority considered the sequence on Bulmershe materials necessary for their understanding of the materials (Question 8). It appears that some modification on the Nuffield sequence is necessary.

TABLE 1

Frequency of Responses to Questions Concerning Slide/Tape Sequences

Question	Response			
	Yes	No		
1. Did you view both sets of slides as part of your study of the Module?	12(100) ^a	0(0)		
	SA ^b	A	D	SD
2. The slides and commentary on the Nuffield Maths project gave me a clearer picture of the philosophy of the project.	2(17)	10(83)	0(0)	0(0)
3. The slides and commentary on the Bulmershe materials gave me a good overview of the materials in the Bulmershe Mathematics Program.	2(17)	10(83)	0(0)	0(0)
4. The slides conveyed their message clearly	1(9)	7(64)	3(27)	0(0)
5. The taped commentary supported the slides very well in conveying the overall message.	1(8)	11(92)	0(0)	0(0)
6. I would have preferred a written commentary with the slides rather than the taped commentary.	0(0)	1(8)	10(84)	1(8)
7. The slide/tape sequence for Nuffield could have been omitted from the module without affecting the value of the content of the module.	0(0)	5(45)	6(55)	0(0)
8. The slide/tape sequence of the Bulmershe materials could have been omitted from the module without affecting my understanding of the materials.	0(0)	3(25)	8(67)	1(8)

^a Numbers in parentheses indicate the frequency for each response expressed as a percentage.

^b SA - strongly agree; A - agree; D - disagree; SD - strongly disagree.

PREPARATION OF VIDEOTAPESTeaching Problem Solving

A substantial part of one unit in MS410 looks at some current practices in the teaching of problem solving. As well as describing a strategy for teaching problem solving, the lecturer considered it of benefit to give a practical demonstration of the strategy. Hence it was decided to videotape a lesson with a group of primary children in which the strategy was being implemented by the lecturer.

Planning for the production of the tape involved:

1. arranging with a local school for a group of students to come to the College for about 2 hours;
2. transporting the students to and from the College on the day;
3. arranging with the Media Services Section to set up a room for filming;
4. preparing a lesson plan and materials for the students to use.

A trial version of the tape was made during the last week of the 1978 school year with a group of 12 children from Grades 5-7 at a local non-State school. As a result of this trial, it was decided to restrict the number of children to one group of five or six for the final production of the tape.

The final videotaping was completed early in first term, 1979. The tape was then edited and copied on to different formats depending on the type of equipment to which

students had access. Information regarding the make and model of video playback equipment available to MS410 students was collected by the External Studies Centre. All the tapes were produced by the Media Services Section of the College.

Diagnosing Errors in Arithmetical Processes

One complete module in MS411 is devoted to the diagnosis of children's difficulties in mathematics. A number of diagnostic tests are discussed, and the strategies for administering these tests are briefly outlined. It was considered advantageous to show students some of these tests being administered in order to illustrate more clearly the particular strategies involved. The two tests chosen to be shown on videotape were the Diagnostic Test of Fundamental Processes in Arithmetic and the Keymath Diagnostic Arithmetic Test.

A former student in MS411 consented to be the interviewer for the Diagnostic Test of Fundamental Processes in Arithmetic. Permission to proceed with the videotaping was received from the Principal of the school where the former student is a teacher and also from the parents of the four children involved in the testing. The videotaping was carried out in a spare room at the school by Media Services staff and the lecturer operating from out of the College's mobile T.V. van.

The lecturer acted as the interviewer for the Keymath Diagnostic Arithmetic Test, which was administered in part to one sixth grade student. Videotaping of this session was carried out at the College by staff of the Media Services Section, who also assisted in the editing and copying phase of the operation. The procedures were similar to those described for the preparation of the videotape on teaching problem solving.

IMPLEMENTATION AND EVALUATION OF THE VIDEOTAPES

Videotaped material was forwarded to students together with the printed modules at the appropriate time in each course. It was anticipated that students with access to video equipment in study centres would be able to view the tapes concurrently with their study of the modules. At the same time it was appreciated that students using facilities in locations other than study centres might find it more difficult to co-ordinate the viewing and the study of the printed notes.

When completing the course evaluation questionnaire (Appendix A), students were required to answer questions relating to:

1. access to playback equipment;
2. timing of their viewing,
3. the quality of the video and audio dimensions of the tape; and
4. the educational value of the videotapes.

Data for the videotape on "Teaching Problem Solving" are shown in Table 2. Data for the videotape on "Diagnosing Problems in Arithmetical Processes" are shown in Table 3.

TABLE 2
Frequency of Responses to Questions Concerning the Videotape on
"Teaching Problem Solving"

Question	Response	
	Yes	No
1. Did you have access to a video-recorder to view the tape?	11(100) ^a	0(0)
2. Did you view the tape as you were working through Module 5?	5(45)	6(55)
3. Did you view the tape some time before or after you completed the module?	6(55)	-
4. Did you at no time view the tape for Module 5?	-	0(0)

	SA ^b	A	D	SD
5. The quality of the picture from the tape was clear throughout the presentation.	1(9)	8(73)	2(18)	0(0)
6. The voice of the lecturer was clearly audible at all times.	2(18)	9(82)	0(0)	0(0)
7. The students' voices were clearly audible at all times.	1(9)	8(73)	2(18)	0(0)
8. From the lesson I was able to identify the four stages in the instructional model.	3(27)	6(64)	1(9)	0(0)
9. The videotaped lesson did <u>not</u> add to what had been presented in the <u>printed</u> notes.	0(0)	5(45)	5(45)	1(10)
10. The value of the videotaped lesson was minimal because it did not represent an actual classroom situation.	1(9)	1(9)	8(73)	1(9)

^a Numbers in parentheses indicate the frequency for each response expressed as a percentage.

^b SA - strongly agree; A - agree; D - disagree; SD - strongly disagree.

From Table 2 it can be seen that all respondents had access to video equipment and that all viewed the tape as part of their study of Module 5. Six people did not view the tape concurrently with their study of the printed notes. This can be explained in the case of four students by the fact that they viewed the videotape while attending an informal discussion conducted by the lecturer while visiting an outside centre during the May school vacation. This viewing occurred before the students were scheduled to study the module.

Responses to Questions 5, 6, and 7 indicate that, for most people, the video and audio dimensions on the tape were satisfactory. Only one student was unable to identify the aspects of the instructional strategy being portrayed (Question 8). Approximately half of the students indicated that the practical demonstration did not add to what was presented in the printed notes (Question 9). A majority of the students indicated that the non-classroom setting of the lesson did not detract from the value of the videotape.

TABLE 3

Frequency of Responses to Question Concerning the Videotape on
"Diagnosing Problems in Arithmetical Processes"

Questions	Responses	
	Yes	No
1. Did you have access to a video-recorder to view the tape?	13(100) ^a	0(0)
2. Did you view the tape as you were working through Module 7?	10(77)	3(23)
3. Did you view the tape some time before or after you completed the module?	3(23)	-
4. Did you at no time view the tape for Module 7?	-	0(0)

	SA ^b	A	D	SD
5. The quality of the picture from the tape was clear throughout the presentation.	1(8)	10(77)	0(0)	2(15)
6. The voices of the teachers were clearly audible at all times.	2(15)	10(77)	1(8)	0(0)
7. The students' voices were clearly audible at all times.	0(0)	10(77)	2(15)	1(8)
8. The demonstrations on the videotape assisted me in completing the diagnostic exercise.	2(15)	8(62)	1(8)	2(15)
9. I found that the children's written responses which accompanied the videotape improved the value of the learning experience.	3(23)	6(47)	2(15)	2(15)

^a Numbers in parentheses indicate the frequency for each response expressed as a percentage.

^b SA - strongly agree; A - agree; D - disagree; SD - strongly disagree.

Table 3 indicates that all respondents had access to video equipment and that all viewed the tape as part of their study of Module 7. Three people did not view the tape concurrently with their study of the printed notes. There is no indication from students' comments as to the reason(s) for this.

Responses to Questions 5, 6, and 7 indicate that, for most people, the video and audio dimensions on the tape were satisfactory. A majority of students found the demonstrations on the videotape of assistance in completing their own diagnostic exercise which formed an assessable activity for Module 7 (Question 8). Children's written responses for the Diagnostic Test of Fundamental Processes in Arithmetic were supplied to each student to aid in the viewing of the first part of the tape. A majority of students found that these written responses improved the value of the learning experience.

SUMMARY AND CONCLUSIONS

In an attempt to overcome the problem of access to teaching material presented by the written external mode, two slide/tape sequences were developed to form part of one module of a mathematics curriculum studies course in the Bachelor of Education program. Furthermore, in order to demonstrate a number of teaching and diagnostic techniques, videotapes were made to form part of two other modules in the same course.

On completion of the first year that the course was offered, students were asked to evaluate these non-print media. Arising out of this evaluation the following conclusions can be drawn:

1. The slides and commentary on the Nuffield project successfully conveyed the active-learning philosophy of the project. However, omission of this material in its present form would not appear to detract from the value of the module.
2. The slides and commentary on the Bulmershe project were successful in giving students an overview of the materials. Furthermore, it was generally felt that omission of the slides and commentary would adversely affect the understanding of the material.
3. The challenges presented by the production, supply, and implementation of videotapes in an external course can be handled successfully by a team effort.
4. Practical demonstrations on videotape are moderately successful in complementing the material presented through the printed page.

MS410/411: MATHEMATICS ADVANCED CURRICULUM STUDY

COURSE EVALUATION

Student evaluation of the course is one of the important sources of information for effecting its improvement. It would be greatly appreciated if you would complete this form as soon as possible after you have finished the last module and return it to the College in the addressed envelope provided.

Be assured that every care will be taken to preserve respondents' anonymity.

Thank you.

INSTRUCTIONS

Read each of the following statements and indicate whether you strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD) by placing a tick in the appropriate column.

Modules

- . Objectives are clear.
- . Activities are realistic.
- . Activities are helpful.
- . There should be more activities.
- . Readings are well chosen.
- . There are too many readings.

SA	A	D	SD

Comments:

Assessment

- . There are too many module assessable tasks.
- . Assignments are relevant.
- . There are too many major assignments.
- . Lecturer feedback on assignments is satisfactory.
- . Lecturer assignment expectations are realistic.
- . Marking of assignments is fair.
- . Return of assignments is satisfactory.

SA	A	D	SD

Comments:

Vacation School

- . On-campus vacation schools are necessary.
- . Attendance at vacation schools should be compulsory.
- . I would be willing to attend a vacation school if a number of modules in the course could be completed during the school.

SA	A	D	SD

Comments:

Students' Reactions

- . I found this course relevant to my work.
- . I found this course rewarding.
- . I had to spend too much time on this course.
- . I felt part of the College.
- . The lecturer helped me feel part of the College.
- . I felt isolated from the College.
- . Study groups are necessary to really understand this course.
- . This course has provided opportunity for me to examine my teaching.
- . I would like to choose parts of the course instead of doing every module fully.
- . I would like to have a number of modules which are elective modules.
- . The resources provided in study centres are very relevant and useful. (*Respond to this statement only if you have access to a study centre.*)
- . I made frequent use of the resources from the central collection of the College library.
- . I found the response of the External Studies Librarian to be prompt and efficient.
- . I would recommend other teachers do this course.

SA	A	D	SD

Comments:

The following section deals with evaluation of the slide/tape sequence and videotapes associated with Modules 3, 5, and 7.

Read the details carefully and respond in the manner requested. Your co-operation in this matter will be greatly appreciated.

The slide/tape sequence in Module 3 of MS410 was included to achieve two objectives:

1. to convey the spirit of the Nuffield Mathematics Project and its orientation to active learning;
2. to give you an overview of most of the materials in the Bulmershe project.

In order to help me evaluate the pedagogical aspects of this material, please answer the following questions.

1. Did you view both sets of slides as part of your study of the module?

(Circle the appropriate answer)

YES

NO

If you answered YES to Question 1, answer Questions 2-9 by circling the appropriate letters. If your answer was NO to Question 1, proceed to Question 10.

2. The slides and commentary on the Nuffield Maths project gave me a clearer picture of the philosophy of the project.

SA A D SD

3. The slides and commentary on the Bulmershe materials gave me a good overview of the materials in the Bulmershe Mathematics Program.

SA A D SD

4. The slides conveyed their message clearly.

SA A D SD

5. The taped commentary supported the slides very well in conveying the overall message.

SA A D SD

6. I would have preferred a written commentary with the slides rather than the taped commentary.

SA A D SD

7. The slide/tape sequence for Nuffield could have been omitted from the module without affecting the value of the content of the module.

SA A D SD

8. The slide/tape sequence of the Bulmershe materials could have been omitted from the module without affecting my understanding of the materials.

SA A D SD

9. General Comments: _____

10. Please check (✓) in the box beside the reason(s) why you did not view the slide/tape sequence for Module 3.

☐

I did not have access to a slide-projector or viewer.

☐

I did not have access to a tape-player.

☐

Some or all of the slides were damaged and would not fit into my projector/viewer.

☐

I read the module, but was too busy to spend time on the slides.

☐

Having read the module, I decided that the slide/tape sequence would not add to my understanding of it.

☐

Since there was no assessable activity for the module, I treated the slide/tape sequence as an optional extra.

☐

Other reason(s): _____

Module 5 included a videotaped lesson of the lecturer teaching a group of children. The lesson was included to demonstrate the method of instruction in problem solving discussed in the printed notes.

In order to assist in the evaluation of this material, please answer the following questions by circling your response.

1. Did you have access to a video-recorder to view the tape? YES NO
 State the place where you viewed it.
 (Be specific) _____
2. Did you view the tape as you were working through Module 5? YES NO
3. Did you view the tape some time before or after you completed the module? YES NO
4. Did you at no time view the tape for Module 5? YES NO
 Reasons for not viewing the tape were: _____

If you viewed the tape, indicate your response to the following statements by circling the appropriate letters in each case.

5. The quality of the picture from the tape was clear throughout the presentation. SA A D SD
6. The voice of the lecturer was clearly audible at all times. SA A D SD
7. The students' voices were clearly audible at all times. SA A D SD
8. From the lesson I was able to identify the four stages in the instructional model. SA A D SD
9. The videotaped lesson did not add to what had been presented in the printed notes. SA A D SD
10. The value of the videotaped lesson was minimal because it did not represent an actual classroom situation. SA A D SD

General Comments: _____

Module 7 dealt with the diagnosis of children's problems in mathematics. Students were asked to perform a diagnostic exercise of their own. In order to assist in this task, a videotape was included in the module to demonstrate the role of a teacher with two different types of tests.

In order to assist in the evaluation of this material, please answer the following questions by circling your response.

- | | | |
|---|-----|----|
| 1. Did you have access to a video-recorder to view the tape?
State the place where you viewed it.
(Be specific) | YES | NO |
| <hr/> | | |
| 2. Did you view the tape as you were working through Module 7? | YES | NO |
| 3. Did you view the tape some time before or after you completed the module? | YES | NO |
| 4. Did you at no time view the tape for Module 7? | YES | NO |
| Reason(s) for not viewing the tape were: <hr/> | | |
| <hr/> | | |
| <hr/> | | |
| <hr/> | | |

If you viewed the tape, indicate your response to the following statements by circling the appropriate letters in each case.

- | | | | | |
|---|----|---|---|----|
| 5. The quality of the picture from the tape was clear throughout the presentation. | SA | A | D | SD |
| 6. The voices of the teachers were clearly audible at all times. | SA | A | D | SD |
| 7. The students' voices were clearly audible at all times. | SA | A | D | SD |
| 8. The demonstrations on the videotape assisted me in completing the diagnostic exercise. | SA | A | D | SD |
| 9. I found that the children's written responses which accompanied the videotape improved the value of the learning experience. | SA | A | D | SD |

General Comments:

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DEVELOPMENT, TEACHING AND ASSESSMENT OF A MULTIDISCIPLINARY COURSE
A Case Study*

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ABSTRACT

This paper reports on the development, teaching, and assessment of Perspectives on Mining, a non-credit multidisciplinary course developed by the Division of External Studies (University of Queensland) as part of a joint project with the Australian Inland Mission. The multidisciplinary make-up of the course team and the joint nature of the project meant that a wide range of, often conflicting, objectives were being pursued. The experience of the project has emphasised the need for (i) clear articulation of objectives to students and (ii) formalised but flexible procedures for assessment of students. It has also indicated that there is a distinctive educational role for such courses.

BACKGROUND

As is well known, the Division of External Studies of the University of Queensland has been involved in off-campus university teaching for over sixty years. The Division is organised along the traditional disciplines of Economics, Education, English, French, Geography, Government, History, and Mathematics. In the main the academic staff within the Division are responsible for the teaching of particular external courses only. (Classics and Ancient History, Commerce, Law, and Japanese courses are offered to external students by the staff of relevant internal departments.) While the disciplines represented are largely a function of student demand (and, in part, the result of historical accident), they are a fair cross-section of the humanities and social sciences disciplines. As such, there existed within the Division a potential for the offering of either interdisciplinary or multidisciplinary courses. The development of American Studies and the Australian Studies programs are an attempt to exploit this potential. However, these programs are perhaps more suited to students with a fairly definite degree study program and tend to ignore students who are uncommitted or undecided on their study program. It was felt, therefore, that there was a need for a multidisciplinary "sampler" course. Such a course, preferably organised around a single theme, would allow external students to get a first-hand experience of a wide range of academic disciplines. Pressure to develop such a course received an unexpected boost when the Division was approached by the Australian Inland Mission (A.I.M.) to develop a course for its educational program in Queensland.

The A.I.M. is a commission of the Uniting Church and has a long record of service to communities in isolated parts of Australia. The A.I.M. was seeking to extend a project started in the Pilbara Region of Western Australia which had as one of its aims the extension of educational opportunities to people in remote areas. When the Division of External Studies was approached with a view to co-operating in a similar project in the communities of the Bowen Basin of Queensland, the Division saw this as an excellent opportunity for the development of a multidisciplinary sampler course. The theme of mining in Australia was chosen and the course was titled Perspectives on Mining. A grant from the Utah Foundation met the major portion of the direct development costs associated with the project.

THE COURSE

A brief outline of the course is set out below.

* Parts of this paper have appeared in somewhat different contexts in an article in the Mining Review and in the Newsletter of the Tertiary Education Institute of the University of Queensland.

1. The Resource Base: the physical geography of mining.
2. Boom and Bust: aspects of the history of mining.
3. Digging and Dollars: some economic aspects of mining.
4. The Uranium Decision: a case study in public policy formulation.
5. Mining and the Development of Urban Australia: aspects of urban history.
6. Living Way Out: the human geography of mining.
7. Industrial Conflict and Society: a theoretical discussion of industrial relations with relevance to mining.
8. "The Man Below": contrasting literary approaches to relationships in the mining environment.

The course starts with an analysis of what we term "the resource base". In this topic, the geographical location of major mineral deposits in Australia is explained in terms of geological processes. This is followed, in the second segment, by a broad historical survey of the exploitation of these resources, together with an analysis of the ways in which mining has influenced Australian history in economic, political, social, and cultural terms. In the third segment, an economist analyses some of the economic aspects of the industry, concentrating on the period since the renewed upsurge in mining activity in the 1960's. Three main aspects are examined: the structure of the industry as a whole and particularly of the three industries which have been a key part of the mining boom - iron ore, coal, and aluminium; the significance of the industry to the economy as a whole (including the consequences of the mining boom for the structure of the Australian economy); and some of the issues and policies about which there has been much debate and controversy - the re-orientation of the Australian economy towards the mineral sector, foreign investment and control, taxation, export controls, etc.

These three segments present a basic general picture of mining in Australia. They are followed by a number of segments which examine the industry and its consequences for Australia as a nation from more specific points of view. A political analyst interested particularly in the formulation and implementation of government policies presents a case study of the process by which the decision to proceed with the mining and export of uranium was made by the Australian Government in 1977; the background to the policy decision and its formulation and implementation are examined, and the whole process is evaluated in terms of political principles. An historian interested in the process of urbanisation within Australia (one of the most highly urbanised nations in the world) examines the implications of mining activity for the pattern of development of towns and cities in Australia; the urban consequences of the gold-era of Australian mining, the decline and decay of mining towns and other consequences of the inter-war doldrums, and the impact of the post-war mining boom on the growth and character of Australian towns and cities are analysed. A geographer interested in the study of population and urban geography examines some of the "human" consequences of the physical location of mineral deposits outlined in the first segment of the course; the results of some research into the nature of, and life in, the remote communities created by mining activity are summarised, and a particular socio-demographic study is made of the Bowen Basin region of Queensland using Population and Housing Census data. A sociologist interested in the sociology of work and what may broadly be termed industrial relations outlines some theoretical issues relating to industrial conflict which are of relevance to the mining industry in terms of which students may examine and analyse their own work experience. Finally, a person interested in literature surveys the ways in which mining has influenced and been the subject of Australian literature in a variety of forms, and analyses two examples of

literature - an English play and an Australian short story - written against a mining background.

The initial selection of "perspectives" was of course dictated to some extent by the interests and expertise of members of the Division of External Studies. Clearly some other topics could usefully be added. An obvious contender for inclusion is the analysis of the environmental implications of mining. The discussion of the economic consequences of a rapidly expanding mining sector and of the whole issue of governmental interference in the industry's operation could also usefully be examined in greater depth. These matters have all been particularly controversial and the future course of the industry will depend to a considerable extent on how they are resolved. However, the need to keep the course to an acceptable size meant that these topics, regrettably, had to be excluded from the course program.

OBJECTIVES OF THE PROJECT

For the A.I.M., the course is part of a wider educational and social program in the Bowen Basin. They are seeking to stimulate interest in higher education and at the same time to encourage interaction between members of a diverse community which might not otherwise take place. (It was largely for these reasons that the theme of mining was chosen: in the Bowen Basin, coal mining is the principal industry, and thus the subject of mining is likely to be seen by all prospective students as of relevance and interest.)

The Division's objectives are more specific. On the one hand, we see the course as presenting a selective analysis of some of the main aspects of an industry of considerable importance to Australia by analysing ways in which mining activity constitutes an integral part of Australian history, economics, politics, society, and culture. The course also seeks to illuminate some of the sources of controversy and dissension which have been associated with mining. Thus we hope that students of the course will learn something about the many aspects and implications of mining. Of greater importance, however, is the objective that students will gain an appreciation of the different academic disciplines in terms of which the mining industry had been analysed in the course. This, we believe, goes some way to overcoming some of the defects inherent in the nature of learning in terms of disciplines.

It is widely accepted that one of the principal goals of a university education is to enhance students' analytical and critical ability. The division of knowledge into the recognised academic disciplines has meant that usually students gain an appreciation of only one or at best a small number of such disciplines in the course of their study. Very often they remain ignorant of the methodology of the other, even closely related, disciplines and thus unaware of the insights they provide into a particular subject. We hope that Perspectives on Mining will reveal to students the value of analysing a common general theme from the viewpoint of several quite different disciplines.

COURSE DELIVERY

Perspectives on Mining is an unusual course offering for the Division in that it is offered in specific localities rather than to the usual geographically scattered student population. Direct student contact is greatly facilitated by having a local co-ordinator who acts as a "tutor" for the course. (The local co-ordinator is an Honours graduate of the University of Queensland and an employee of the A.I.M. His salary is met in part from the funds allocated for the course.) Having a local tutor who is an employee of the other sponsor of the course means that another party is involved in varying degrees in the actual delivery of the course.

Student selection is also achieved in a somewhat different manner. All students were required to complete an application form in which they had to make a statement explaining their motives for enrolling in the course. All applicants were then interviewed by a panel to assess their suitability. As all applicants were of "mature age" and of varying educational backgrounds, the interview was designed both to assess their suitability and also to establish strengths and weaknesses of selected students. This selection procedure means that the local tutor can "keep an eye" on students who are likely to experience difficulties at a later stage.

The teaching activities of the local tutor are supplemented by visits by members of the course team. This means that students, apart from benefiting from interaction with students in the same locality, have opportunity for direct meeting with staff involved with the course. In this sense, Perspectives on Mining is an atypical course. It also poses challenges for student assessment and course evaluation.

ASSESSMENT

An informal assessment based on tutorial performance is routinely conducted by the local tutor. This provides valuable feedback to the course team. Formal assessment is in terms of a series of assignments that students are required to complete. To complete the course requirements in full, students have to submit four essays of approximately 1500 words chosen from eight course segments.

In 1979, less than half of all students met the full requirements for the formal assessment of the course. Those students who undertook a substantial amount of written work met first-year university standards, in some cases at a very high level. However, the assessment of the remaining students in terms of the course as a whole was more troublesome. This was due to the fact that, as the A.I.M. regarded the course in terms of a broader social and educational objective, students were allowed to participate in the course at different levels. This in effect means that some students who were enrolled in the course were not interested in any formal "qualification" as an end-product. Thus we had students who completed only some of the assignments or who attended all tutorials and "lectures" but did not complete any assignments. The problems of assessment need further clarification.

It is clear from the early experience of Perspectives on Mining that in a course such as this it is not possible, and perhaps not desirable, to have a rigid assessment procedure. This is particularly so when a course is offered under a joint sponsorship and the objectives of the sponsors are not the same. One solution, though administratively cumbersome, would be to have totally separate assessment procedures for the sponsors involved.

EVALUATION

As noted earlier, the project as initially conceived by the A.I.M. had fairly broad social and educational objectives. Our interest has been more specifically in the educational objectives.

There are several ways in which the project is of special interest to educators concerned with teaching at a distance and where experience of the project is of particular value for the Division of External Studies. It is the first time that the Division has offered a multidisciplinary course prepared by a course team (in this case a fairly large one of seven); this resulted in some, not altogether unexpected, difficulties and provided some valuable lessons. Because communication is a central problem in teaching and learning at a distance, it has also been interesting to have all students in the course geographically concentrated and organised into two fairly small groups which meet regularly, with a resident local "tutor" to assist and encourage students and to act as a means of communication

between us and the students. The course is also being used to experiment with the use of different forms of audio material to complement printed course materials. Finally, in 1980 we will be using loudspeaking telephones to allow members of the course team to conduct regular tele-tutorials.

More generally it is interesting to have diverse groups of students in terms of both educational and social background and motivation for enrolling in the course. Only about one half of the students in 1979 would have been qualified for admission to the University; on the other hand there were a few tertiary graduates. There were also representatives of both the "management" and "labour" strata of mining society and some people not directly connected with the industry but inevitably, by their location, influenced by it. This diversity produced some interesting interaction among students and some interesting academic results.

We intend waiting until the end of the two-year pilot period of the project to draw conclusions about these aspects of the project, and its success in a more general sense. However, during the development and first offering of the course in 1979, we were, as joint conveners of the project, increasingly impressed by two aspects of the course which are somewhat novel and point to what we think are some interesting possibilities for future courses.

Firstly, as the course developed, we became more and more aware of the significance of the mining theme in the study of Australia as a nation, and of the value of examining the various dimensions of such a theme - not only for those people interested in Australian studies generally but also for people more intimately connected with the industry who shape its development and are directly affected by it.

Secondly, the course is unique in that it allows students to confront under the umbrella of one course (roughly equivalent to 15 credit points), several quite different academic disciplines; and to do so as these disciplines are applied to the analysis of a theme with which all students have a more or less direct acquaintance. It has become increasingly obvious to us - and to the students - that this is a very demanding exercise. Yet it was widely agreed (in 1979) that it is both highly stimulating and illuminating. Students found themselves looking at a familiar subject from a point of view - or several points of view - which they had not previously considered, nor would ever have been likely to, in any course of study which they might otherwise have taken. The fact that in this case the theme was, to some extent at least, familiar to students made the task less difficult and at the same time made the exercise more interesting and underscored its value. The course also served the purpose of stimulating hitherto latent interests and abilities, sometimes in unexpected directions. (One example was a student who, in response to the literature component of the course, wrote a short story around the theme of the life of women in mining towns. This work was of such quality that we hope it may be published.)

SUMMARY AND OVERVIEW

In summary, we offer the following overview of the issues which have arisen as the course has been developed and offered:

- (i) Jointly sponsored courses - Our experience indicates quite strongly that such courses require clear identification and statement of objectives. An absence of clearly stated objectives can lead to difficulties in both student assessment and in course evaluation. Thus, for example, A.I.M.'s objectives were, perhaps, met to a greater extent in that students did "participate" in the course and undoubtedly "gained" much from the course. On the other hand, despite the non-credit nature of the course, many, if not most, members of the course team were looking forward to formal assessment of assignments.

The fact that a sizeable proportion of students did not wish to complete all assignments led to some frustration on the part of team members. (In passing, this may be a reflection of an "authoritarian" view regarding assignments that may have been held by some members of the course team.)

- (ii) Local tutor - Perspectives on Mining is the first course offered by the Division which has a local tutor who is in contact with all students enrolled in the course. This experience raises the possibility of offering external courses in specific areas rather than offering them to any students who are willing to enrol for them. If this is not workable as a general principle, then it is strongly recommended for "pilot runs" of new courses. In such situations the presence of a "real group" of students, a local tutor, and regular tutorials and course team visits means that new courses can be developed fairly quickly.
- (iii) Usefulness of multidisciplinary sampler courses - From the Division's point of view, this was the most important objective of the project, that is, to test the utility of and to identify the problems associated with such courses. The students, as we have noted earlier, found the sharp breaks in perspectives quite challenging. Amongst the problems we found was the need for "remedial" or "bridging" material relating to each discipline. We found that some course segments had put too much stress on "methodology by example". Thus it was not sufficient to indicate, for example, that a particular approach was that of a geographer. It was found that basic statements on the theory and methodology of particular disciplines required more clarification than was anticipated.
- (iv) Credit/non-credit courses - Our experience brings into focus the more general issue of assessment and evaluation of non-credit courses. Thus while the offering of non-credit courses is generally regarded as a "good thing" and hence requires no defence, the issue of assessment is to some extent at odds with the concept of non-credit courses. We had no clear consensus on the question of whether non-credit courses should be formally assessed at all. A somewhat liberal position is reflected in the view that mere participation in such courses and completion of such courses by full attendance is sufficient assessment of the participants. In Perspectives on Mining we adopted a flexible but formal approach where every student was encouraged to submit work for assessment and all submitted work was assessed at the level of work expected from first-year university students.

It is hoped that the Division of External Studies can continue to offer the course after 1980. As the co-ordinators of the course, we are particularly impressed by the potential value of courses which serve as an introduction to, or expose students to the nature and methodology of, a range of academic disciplines. Such courses are particularly useful when offered to students who are already familiar (by virtue of some direct association) with the course theme. Furthermore, we feel that such courses have a special role in community education when seen against the social impacts of the technological revolution that is already unfolding before us. It is our firm belief that such multidisciplinary courses will have a critical role to play in the "re-education" of large segments of our societies.

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APPENDIXES

APPENDIX I : LIST OF SPEAKERS



J. A. ALLEN, MSc Q'ld., PhD Bristol, F.R.A.C.I., F.T.S., F.A.C.E.

Dr Allen is Chairman of the Board of Advanced Education in Queensland. He has had a long and distinguished career in Chemistry and as an administrator in tertiary education.



J. D. ARMSTRONG, BA BED Q'ld., MEdAdmin N.E., M.A.C.E.

Mr Armstrong is Assistant Director at Townsville CAE. He has been closely involved with all aspects of the development of external studies at the College.



W. L. COOK, BA N.E., MSc N.S.W., PhD E'cla (N.S.W.)

Dr Cook is Senior Lecturer in Industrial Arts, Newcastle CAE. He is responsible for the administration of the Bachelor of Education (Industrial Arts) program offered externally from the College.



B. P. CONNORS, DipEdTech Sus.

Mr Connors is Senior Lecturer in Educational Technology at the Open University's Centre for International Co-operation and Services. He has a particular interest in evaluation of students at a distance, and has recently co-edited a book with Derek Rowntree entitled How to Develop Self-Instructional Teaching.

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C. COTTMAN

Caroline Cottman is a graduate assistant in the Department of External Studies and Continuing Education at Darling Downs Institute of Advanced Education.



A. J. DORING, BA MED *N.E.*, DipSchAdmin *Armidale CAE*.

Alan Doring is Acting Senior Lecturer, Division of Education Studies at Townsville College of Advanced Education. One of his main areas of interest is Sociology of Education.



B. A. FIELDS, BA *Macq.*, MSc MED PhD *Oregon*

Barry Fields is Lecturer in Special Education at the Darling Downs Institute of Advanced Education. He has Masters degrees in Special Education and Early Childhood Education from the University of Oregon.



J. E. GOUGH, MA DCP *W. Aust.*, MEDAdmin *N.E.*

Mr Gough is Dean of Educational Services at Deakin University and is a member of the executive of ASPESA.



M. KELLY, BA MA *Syd.*, PhD *Monash*

Dr Kelly is a course-developer in the School of Education at Deakin University. She has written distance teaching materials and has been associated with the development and production of distance teaching materials for various courses.



S. KEMMIS, BA *Syd.*, EdM PhD *Ill.*

Dr Kemmis is Senior Lecturer in Curriculum Studies at Deakin University where he is responsible for post-graduate teaching in Curriculum Studies. He has written numerous articles on curriculum and program evaluation.



D. A. F. MITCHELL, BA BSc BED MedSt *Q'ld.*, BED *Melb.*, A.R.A.C.I. M.A.C.E.

Mr Mitchell is Lecturer in Education at Kelvin Grove CAE. His lecturing responsibilities include curriculum evaluation.



I. McD. MITCHELL, BA BD *Q'ld.*, MA *Syd.*

Mr Mitchell is Head of External Studies at Adelaide College of the Arts and Education. He is a member of the ASPESA executive. He has a particular interest in counselling of external students.



R. P. MOON, BA MED *Syd.*, PhD *Minn.*

Dr Moon is Acting Head, Department of Education Studies. His particular teaching interest is Philosophy of Education.



B. NOAD, BCom *N.S.W.*, DipEd *Syd.*, MA *Macq.*, EdD *Houston*

Dr Noad is a lecturer in Curriculum and Instruction at Townsville College of Advanced Education.



I. J. PUTT, BSc BED Q'ld., MEd James Cook, PhD Indiana

Dr Putt is Lecturer in Mathematics at Townsville College of Advanced Education. He recently completed a Doctor of Philosophy degree at Indiana University.



P. C. SHARMA, MSc Well., PhD N'cle (N.S.W.)

Dr Sharma is a lecturer in the Department of External Studies, University of Queensland. He has been involved in the offering of a multi-disciplinary course, "Perspectives on Mining", funded by Utah for offering to members of mining communities in Queensland.



K. J. STAFFORD, BA LittB N.E., MEd Syd.

Ken Stafford is Senior Lecturer in Curriculum and Instruction at Townsville College of Advanced Education. He has had a long association with external studies and adult education and is currently engaged in research into the teacher's role in curriculum planning.



R. E. STORE, BA BED Q'ld., MLS Br. Col., A.L.A., M.A.C.E.

Mr Store is Co-ordinator of External Studies at Townsville CAE. He was Co-ordinator of the Workshop on "Evaluation in Distance Teaching".

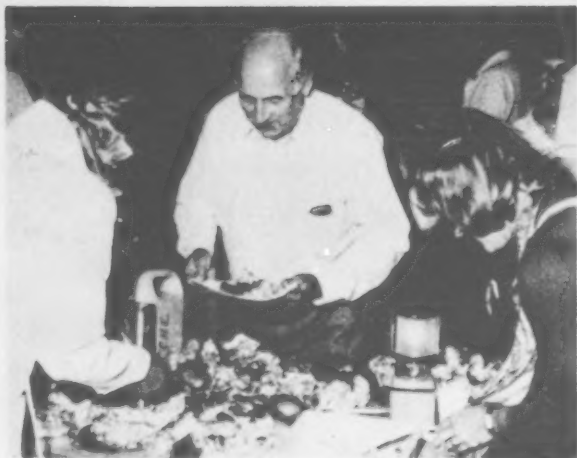
APPENDIX II : LIST OF PARTICIPANTS

ADIE, Ron	Kelvin Grove CAE
ARMSTRONG, John	Assistant Director, Townsville CAE
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BENT, Colin	Royal Melbourne Institute of Technology
BRIMBLE, Ron	Townsville CAE
CAMERON, Brian	Armidale CAE
CAMPBELL, Joan	Royal Melbourne Institute of Technology
CHAPPELL, Bill	Royal Melbourne Institute of Technology
CONNORS, Brendan	Open University, U.K.
COOK, Dr Bill	Newcastle CAE
COOK, Tom	Townsville CAE
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CRUISE, Bob	Preston Technical College
DORING, Alan	Townsville CAE
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GARNETT, Ron	Mitchell CAE
GOUGH, Eric	Deakin University
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HAMILTON, Dr Bill	University of New England (Centre for Administration Studies)
HARDINGHAM, Bob	McAuley College
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APPENDIX III : A PHOTOGRAPHIC SUMMARY OF THE WORKSHOP - PEOPLE, PLACES, EVENTS





APPENDIX IV : ACKNOWLEDGEMENTS

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